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ORIGINAL ARTICLES.

BRAIN SURGERY.

REMOVAL OF A LARGE SARCOMA, CAUSING HEMIANSOPSIA, FROM THE OCCIPITAL LOBE.¹

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THE following history herewith reported conjointly by Dr. Robert F. Weir and myself, is that of a patient who during life presented left hemianopsia, optic neuritis, and certain disturbances in locomotion, from which the diagnosis of tumor of the right occipital lobe was made by several physicians, who also concurred in advising an operation attempting its removal, a fatal result appearing otherwise inevitable. As predicted, the tumor was found in the region described. It was removed in the manner to be stated by Dr. Weir, death resulting subsequently.

Male, æt. forty-two, a Hebrew, native of Poland, came under my observation, October 16, 1886. Until the summer of 1885 he had always been healthy, and denied ever having had any form of venereal disease, or injury to the head. In August, 1885, after a sea-bath, he observed, for the first time, unsteadiness of gait, and had a severe attack of vomiting. Soon after, diplopia for distance and increased awkwardness in walking were observed, and about the same time a disagreeable sensation, akin to numbness, in the right leg, hand, and shoulder, but not in the face. This, and the diplopia were transitory. Headache, usually frontal, was present occasionally, but was never severe. Vertigo, or tendency in a definite direction, was not noticed at this time. No other sensory, motor, or visceral symptoms appeared. He was observed to miss objects when told to pick them up. This was probably due to the diplopia.

He was seen by several physicians at this time, whose opinions are only known to me through "hearsay evidence." Suffice it to state that the diagnoses of locomotor ataxia, chronic spinal meningitis, multiple sclerosis, and dementia, were made by different ones, if they were correctly reported.

Oct. 7, 1885. The patient consulted Dr. E. C. Seguin, and was under his observation for two or three months. Dr. Seguin has kindly given me a summary of the notes of his examination and opinion at the time, which are of interest and importance, as he was the first to recognize in the patient the important localizing symptom—hemianopsia, and to make

the correct diagnosis, and also to have seen him before and during the development of the optic neuritis, and at a recurrence of the diplopia.

"Examination: Eye muscles normal (no diplopia with red glass). Left pupil a trifle wider than right; both active; fundus normal. Has left lateral hemianopsia, vertical line passing a little to left of fixation point. No paresis of face, tongue, or limbs; no anæsthesia; patellar reflexes normal; walk is somewhat staggering, with decided tendency to right.

"29th. Diplopia has recurred; left externus weak; hemianopsia the same. No hemiopic pupillary reaction. Grasp: R., 42°; L., 30°.

"Nov. 7. Beginning neuro-retinitis discovered. This was verified ten days later by Dr. Gruening, who had already seen the patient for hemianopsia, and determined the extent of his visual field, as shown by the accompanying chart (Fig. 1). Both externi paretic (this passed away later). His wife states that drowsiness in the daytime has been a marked symptom from the first; also difficulty in rising from the chair."

Diagnosis made November, 1885: Tumor of mesial aspect of right occipital lobe, involving primarily the cuneus, extending downward toward the tentorium cerebelli, and perhaps also upward toward the paracentral lobule (leg centre). During this period the patient was treated with large and increasing doses of potassium iodide.

From January to July, 1886, he was under the care of the late Dr. McBride. During the early months of this period his diplopia disappeared and never returned. His gait improved somewhat, though he had two attacks in which he suddenly, while walking on the street, felt that he could proceed no further, and at the same time had a strong tendency toward the left, and actually staggered to the left so that his wife was obliged to support him. After resting a few minutes he was able to walk again. No other symptom of importance could be elicited from the patient or his wife covering this period, and Dr. McBride's notes have not been accessible to me. I understand that potassium iodide was his chief reliance for treatment. In July, patient took a trip to California, and returned in September, in about the same condition, from which time on his difficulty in rising, standing, and walking, together with drowsiness, rapidly increased.

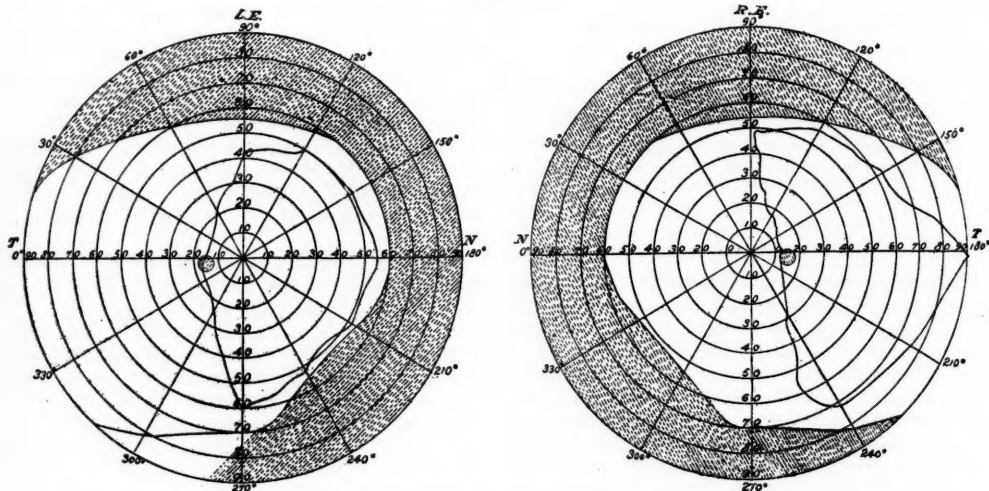
At the time of my examination in October, 1886, left lateral hemianopsia was present. The ophthalmoscope revealed double optic neuritis, most marked in the left eye. Iris active to light and accommodation, the left pupil somewhat larger than the right; no diplopia; no ocular paresis evident. Smell, taste, hearing, and speech normal; no word deaf-

¹ Read before the New York Neurological Society, April 5, 1887.

ness or word blindness; no anæsthesia, analgesia, or disturbance of temperature sense in any part of body. No paresis in muscles of face, trunk, or extremities. No tremor of tongue, face, or extremities. In testing the patient for ataxia by touching finger to the nose with eyes closed, his movements were

No new symptoms developed, except that the right patellar tendon reflex became somewhat greater than the left. His disturbance of equilibrium continued to increase in a very irregular manner. On some days he would stand and walk quite well, on others he would suddenly stagger in walking, or fall over

FIG. 1.



Visual field, Oct. 11, 1885.

clumsy rather than truly ataxic, at times being accurate, at others wide of the mark; this was particularly noticeable with the left hand. A similar condition was noticed in the lower extremities, also more marked on the left. His gait was slow and uncertain. He was unable to find words to express the defects which he felt; denying that it was muscular weakness, numbness, pain, tremor, stiffness, or vertigo which caused his cautious yet awkward movements. Uncertainty of control seemed to be the best term for it. He referred this chiefly to the right hip, thigh, and knee. His patellar tendon reflexes were rather active and about equal. In walking, he would frequently hit objects to his left, probably on account of the limitation of the visual field upon that side, and when seated at the table he would turn to the left, bringing a half profile view of the body and face to a person directly opposite. This was, probably, also due to the same cause, being an attempt to bring his limited field fully to the front of the table. There was no tenderness to pressure or pain on percussion of any part of the head. Frequent expectoration of a viscid saliva was an increasing symptom during the last few months of his life.

Diagnosis.—The symptom left hemianopsia could only be accounted for by a destructive lesion in the neighborhood of the gyrus cuneus of the right occipital lobe (Fig. 2). The locomotory disturbances appeared to me to be due to the pressure effects of a tumor on structures below the tentorium, this implying a growth of considerable size.

to one side when seated, usually forward and to the right, frequently with a twisting tendency of the body to the left. His steps became short, the feet being barely lifted from the floor, and with movements slow and cautious. Yet he could see well, reading the daily papers up to the last. On some days he was dull and listless, though never in a stupor; on others, was bright and talkative. His intellect was not impaired, and his family observed no change in his character or disposition. His sleep was natural, and hallucinations were never observed. He was extremely uncomfortable mentally, not from his visual defects, to which he attached little importance, but from his difficulties in locomotion, and disagreeable sensations.

Treatment with potassium iodide, which had been discontinued for some months, was resumed.

On February 17, 1887, he was seen by me with Dr. E. C. Seguin, who proposed an exploratory operation by trephining over the neighborhood of the cuneus, and, if found accessible, to remove the neoplasm. Dr. Weir was consulted, and after reviewing the data of the case consented to undertake the operation. The proposal was made to the patient, the dangers of the operation, and the dangers without it being fully stated. He frankly acknowledged that he would prefer the only chance, that of operation, to waiting for a fatal result by disease, as life was intolerable to him as he then was. He consented, therefore, to be operated upon.

It was considered advisable to have additional confirmations of the opinions expressed, and he was

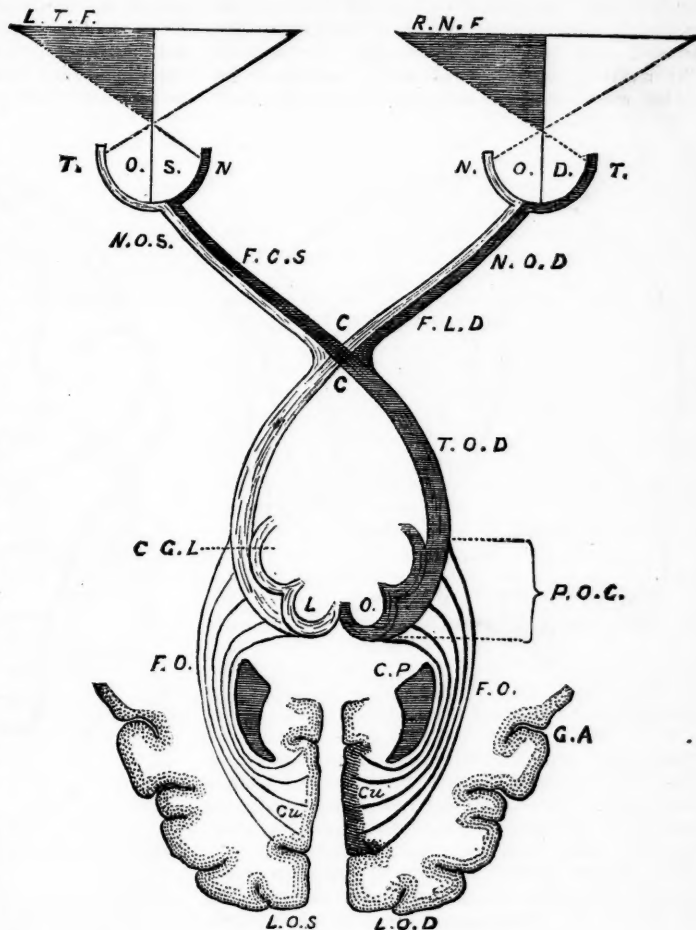
subsequently seen by me with Dr. E. C. Spitzka, who, without knowing the diagnosis which had been made, after a review of the history and an examination of the case, arrived at the same diagnosis already reached by Dr. Seguin and myself. He also concurred in recommending operation. The same conclusions were reached by Dr. E. G. Janeway. Both he and Dr. Olcott, of Brooklyn, who had seen the patient when he was first affected, agreed upon the advisability of the operation as the only chance left in a case rapidly approaching a fatal issue. They saw him with me during the week before the operation, when pressure symptoms were rapidly increasing. The characteristic feature of all his symptoms, except the hemianopsia and the optic neuritis, was their vacillating and intermittent nature, even to the oculo-motor disturbance, indicating pressure effects, or circulatory disturbance, rather than direct destructive action of the tumor.

As the principal interest of the case lies in its surgical side, the remaining incidents will be reported by Dr. Weir.

The operation was performed March 9, 1887, at the New York Hospital, whither the patient had been sent for more perfect control, and on account of the better antiseptic conditions there present. A dose of Hunyadi water was administered to move the bowels the morning of the operation. The head was also shaved, and the scalp washed with green soap and water, and then with ether, and subsequently covered for several hours with carbolic cloths, wrung out of 1:30 solution and by gutta-percha tissue, all secured *in situ* by a bandage.

At 3 P. M., in the presence of Drs. Birdsall and Seguin as neurological counsel, and of Drs. Bull, Markoe, Abbe, Hamilton, C. T. Bull, Olcott, Starr, Dana, Sachs, and others, the operation was undertaken. The bregma, Rolanderic, and median lines having been marked out, and the occipital protuberance with some difficulty identified, and after the patient had had a hypodermatic injection of a quarter of a grain of morphia, and had been etherized, a

FIG. 2.



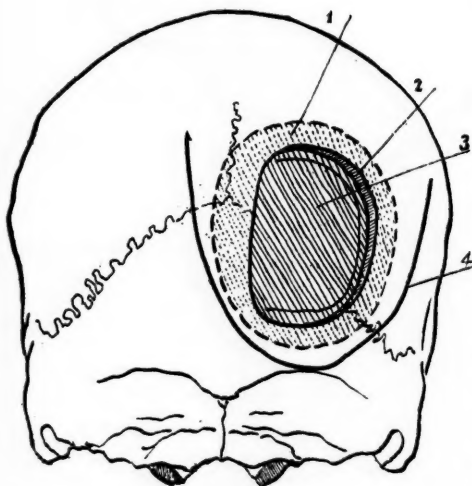
Dr. Seguin's Diagram for Hemianopsia.

Diagram of Visual Paths; designed to illustrate specially Left Lateral Hemianopsia from any lesion. L. T. F., left temporal half-field. R. N. F., right nasal half-field. O. S., oculus sinister. O. D., oculus dexter. N. T., nasal and temporal halves of retinae. N. O. S., nervus opticus sin. N. O. D., nervus opticus dext. F. C. S., fasciculus cruciatus sin. F. L. D., fasciculus lateralis dext. C, chiasma, or decussation of fasciculi cruciati. T. O. D., tractus opticus dext. C. G. L., corpus geniculatum laterale. L. O., lobi optici (corpus quad.) P. O. C., primary optic centres, including lobus opticus, corp. genic. lat., and pulvinar of one side. F. O., fasciculus opticus (Gratiolet) in the internal capsule. C. P., cornu posterior. G. A., region of gyrus angularis. L. O. S., lobus occip. sin. L. O. D., lobus occip. dext. Cu., cuneus and subjacent gyri constituting the cortical visual centre in man. The heavy or shaded lines represent parts connected with the right halves of both retinae.

U-shaped flap, three inches long and three wide, with base upward, was made under a carbolic spray 1:30, so as to straddle irregularly the median line in its lesser part (Fig. 3), the greater part being over the right posterior cerebral lobe. The bleeding was free from this, and from the thick periosteum, and also from the skull itself. At one inch above the occipital protuberance, and the same distance from the median line—in other words, beyond the limits of both the longitudinal and lateral sinuses—the circumference of a one inch trephine

was placed, and the bone, which was rather thin,¹ cut through. A second button was removed immediately above the first, and the intervening bridge gnawed away by a rongeur forceps. The edge of this resulting aperture was further enlarged by taking away externally the cranium with the same

FIG. 3.

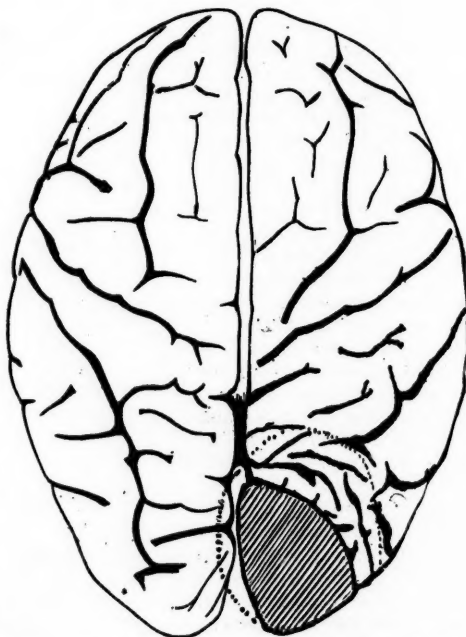


Field of operation. 1. Extension of tumor at its deepest part. 2. Opening in the skull ($2\frac{3}{4} \times 2\frac{1}{4}$ inches). 3. Flap of dura turned toward the median line. 4. Flap of the scalp.

instrument until an oval opening, measuring two and three-quarters by two and a quarter inches, was made. The dura mater, non-pulsating, rose tensely in the space, and was of a deeper hue than normal. This membrane was divided for two-thirds of the extent of the bone opening, its retained attachment being toward the median line, so as to avoid encroaching on the longitudinal sinus. As it was cut and turned back, the brain—or what was at first taken for brain, but was immediately recognized as the tumor—at once rose into the bony opening. It was of a purplish-red color, like kidney structure, and was covered over by a thin cellular tissue, with large veins ramifying in it. With a director and the edge of a spoon handle, a thin, yellowish layer of flattened out, expanded brain tissue was loosened from the tumor on its outer side (Fig. 4), and in this direction the enucleation was accomplished to a depth of nearly an inch. Similarly proceeding, but without seeing any further brain substance, the tumor was loosened easily on all sides. Additional room was obtained for manipulation by cutting away freely of the cranium externally, but all was insufficient to obtain access to the outlying edges and base of the growth. The tumor was therefore incised, and some of its softened, granular, and fatty-looking contents forced out. This somewhat diminished its size, and enabled the forefinger to be passed between

the cranium and tumor, and by its aid the delicate cellular attachments that held the mass in place were felt to yield easily and enucleation became possible and the base finally reached. By now drawing the finger gently but firmly toward the cranial opening, the tumor was torn nearly completely in two, and its

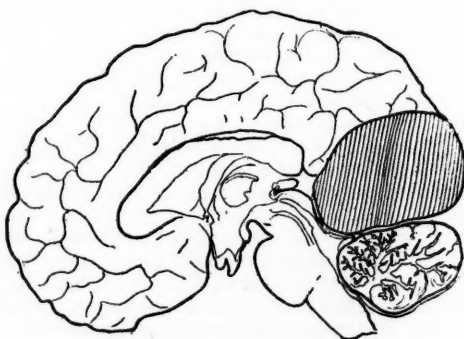
FIG. 4.



Tumor seen from above. The heavy shading shows the presenting part of the tumor when the dural flap was raised. The dotted line gives the maximum size of the tumor on a deeper level.

outer half lifted out, and then the inner part, with the help of the finger-end and nail, separated from the falx and withdrawn.

FIG. 5.



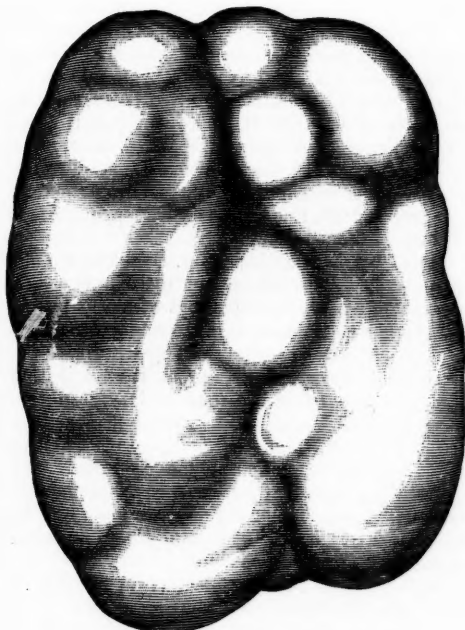
Vertical section showing tumor.

Inspection of it showed that it had been entirely removed, and that its probable attachment was toward the posterior border of the falx. A good deal of

¹ This point has been noticed in several tumor cases by W. Hale White, and is apparently due to the prolonged intracranial pressure. Guy's Hospital Reports, 1885-86.

venous bleeding took place from the huge cavity left by the removal of the tumor. This was stopped with four sponges, and temporary pressure in this way resorted to. After a few minutes they were removed, and the cavity inspected by the light of a small electric lamp, which showed the immense compression of brain tissue that had taken place, the falx being crowded over toward the left beyond the median line, and the tentorium depressed to a horizontal line (Fig. 5). The tumor itself told the story better, for it, as was afterward learned, weighed one hundred and forty grammes, or five and a quarter ounces, and measured three and a quarter inches by two and three-quarters, and was two and a half inches thick (Fig. 6). Its greater circumference was eight and a half inches, and its lesser seven inches.

FIG. 6.



Tumor, seen from its base; actual size.

As the hollowed-out brain was lifted up by a retractor, two bleeding points were seen, one being in the region of the straight sinus, though not free enough for that vein, and probably belonging to the pedicle of the growth, and the other apparently was arterial, and possibly from a terminal branch of the posterior cerebral artery. The flow from each was readily checked by direct pressure, and it was determined, on consultation, to control them by packing this cavity with iodoform gauze of five per cent. strength. This was done not too strongly, it being assumed that the released brain would also contribute additional pressure, and the ends of the strips of gauze, subsequently, were, for easy extraction, allowed to emerge from the lower angle of the scalp wound. The dura mater was partly united over the gauze by several loose sutures (in-

stead of being closely brought together, as had been done in another case), and the scalp wound closed with catgut sutures, a rubber drainage tube being introduced under the skin up to the skull opening. Over these, sublimate and iodoformed peat bags with sublimate loose compresses of gauze and absorbent cotton were secured with gauze bandages, and the patient put to bed.

The operation was well borne until the final enucleation took place, when the pulse decidedly fell, apparently from the loss of blood, which was then suddenly augmented, and which amounted, in the whole operation, to some ten or twelve ounces—the oozing being persistent from scalp and diploë, and difficult to control entirely by ligatures, clamps, and finger pressure. By bandaging the limbs and by the administration of whiskey subcutaneously his condition improved, and at the close of the surgical work he was in a fair condition. Pulse 132, but regular and of good volume. Slight diverging strabismus was, however, noticed in the left eye. He was ordered stimulants by the skin and rectum. Hot bottles, duly protected, were placed in the bed, and his head kept low, and enemata of whiskey, 3j, and milk were ordered every two hours, with stimulants hypodermatically, if required.

The patient came out of the ether quickly, and showed considerable restlessness, moving all his limbs and having proper voice. By 7.30 P. M., two hours after the operation, the pulse had become slower, 120, but gradually weaker, and the dressings were stained with blood which had soaked through them at one point. This deterioration of the pulse continued until I saw him with Dr. Birdsall, at about 10 o'clock, when he was found very restless, and with an extremely weak pulse, and increasing marks of blood soakage in the dressings. The patient, however, was conscious, though somewhat dull. A salt transfusion (common salt, 93 grains, carb. sodæ, 16 grains, to one quart of filtered water, to which solution three per cent. of sugar is added, as suggested by Landerer¹) of nearly two quarts was slowly injected into the median basilic vein at the right elbow with immediate improvement in the pulse and consciousness. He became also more quiet, and could answer questions, and put out his tongue fairly straight. He, however, showed signs of slight paralysis of the ocular branch of the seventh nerve on the left side, and also had decided divergent squint of the left eye. His hemianopsia was tested by Dr. Birdsall, and found to be unchanged.

As it was evident that part of his deterioration was due to a loss of blood, it became imperative to see if its continuance could be arrested. The dressings were, therefore, quickly removed, and the flaps of the scalp freed by cutting the stitches and raised, when blood was seen to escape in a small stream through the tube from the brain cavity. At first it was intended to remove the packing, and to secure the bleeding points by clamps; but his pulse, which had been raised by the transfusion, suddenly gave out, or so nearly so as to cause me to abandon the idea of resorting to any procedure of length, and to con-

¹ Centralbl. f. Chirurg., Beilage, S. 22, 1886.

tent myself, with Dr. Birdsall's approval, of further crowding in additional iodoform gauze toward the supposed source of hemorrhage. This was done, the flaps replaced,¹ but not resutured, and dressings reapplied. Symptoms of stupor quickly came on, and fearing lest the pressure might cause this, the dressings were loosened by cutting, but the patient's condition continued alarming, and his pulse became absent at the wrist, but was restored by a second transfusion. While the circulation was thus improved, the other symptoms were not similarly affected. The transfusion was kept up experimentally,² though the patient's condition was hopeless, and by its means the heart was kept acting till 2 o'clock, A. M., when he died.

No autopsy was allowed on account of religious scruples, but on removing the packing of iodoform after death, in the lower and anterior part of the cavity was seen quite a large collection of coagulated blood. The tumor was reported by the pathologist of the hospital, Dr. Peabody, to be a spindle-celled sarcoma with a few round cells sparsely found in it, and not to be very vascular.

REMARKS BY DR. WEIR.—There are several surgical points of interest in connection with the foregoing case that may be cursorily dwelt upon. The most important, because it largely entered into the cause of death, was the erroneous method adopted of arresting the hemorrhage. I had previously encountered lacerated vessels in the substance of the brain, the first time in 1882, and twice since then, and had secured them by ligature or by torsion, but none of these were at a greater depth than an inch from the surface. From the effect of sponge pressure, I was led to believe in the present case that the openings in the bloodvessels could be easily controlled, in which idea I was mistaken; the bleeding was also probably favored by the headlow position which his shocked condition induced me to direct. It would have been more correct perhaps to have tried cautiously to elevate his head, and in this way diminish the blood pressure. On a review of the case, however, I believe it would have been better surgery, and in another instance I would so act, to control the bleeding at once from vessels too deeply placed for a ligature, by means of clamp forceps which might protrude through an opening in the flap, and be removed after a period of twenty-four or forty-eight hours, as is done by Richolot's forceps in the vaginal removal of the uterus.

The size of the tumor, it is hardly necessary to state, exceeded anticipation, those usually encountered being smaller, although one has recently been reported by Horsley³ which weighed four ounces, and produced hemiplegia and coma at the time of the operation. In the present operation, though the size of the skull opening was fully two and three-quarters by two and one-quarter inches, further bone room would have allowed an easier extraction of the growth. This enlargement was most

desirable toward the median line, and would have been resorted to without much hesitation had the attempt at enucleation failed, for sundry experiences of injuries over the longitudinal and lateral sinuses,¹ together with those obtained in the cadaver, had convinced me that the skull over such a sinus can be removed without opening it, and without giving rise to any uncontrollable bleeding or subsequent risk. In the rehearsals made for this particular case, which were conducted on the possibility of the growth projecting from the inner side of the cuneus against the falx, as was seen in one of Dr. Seguin's cases,² it was ascertained that after the bone had been gnawed away over the longitudinal sinus, that the dural flap, whose attached base was toward the sinus, could be so pulled upon as to expose fairly the median plane of the brain, aided by a spatula lightly pressing the latter outward. The same procedure could be applied to the inferior surface in respect to the lateral sinus, so as to expose to a considerable depth the tentorium. Such an examination was conducted in a patient whom I shall present in a few moments to illustrate another point, and in whom a frontal lobe was largely opened up to view for the relief of traumatic epilepsy of thirty-five years' duration. The lateral sinus, I may also remark, has been exposed by others beside myself, viz., by Schondorff, Lucae, and by Knapp, to a varying extent, without mishap.

The size of the skull opening, therefore, should be large, and Horsley advises the use of a two inch trephine, and makes two openings with this instrument, connecting them with a saw and cutting forceps. The apprehension that this large vacuity in the calvaria would subsequently expose the patient to the risk of easily inflicted cerebral injury, is not so great as imagined, and can be greatly lessened by resorting to the expedient first practised elsewhere in the body by Macewen, of employing bone grafts, and by sprinkling, as Horsley does, over the dura after its edges have been sewn together, the chopped-up disk of bone, which is to be carefully kept warm till the completion of the operation.

A further step in this direction has been made by Poncet,³ who has shown that pieces one-third of an inch long and one-sixth of an inch wide, can be similarly used. I recently ventured, in the case of trephining for epilepsy which was just mentioned, after exposing the brain and dividing an adhesion extending between the pia and dura mater, through an opening nearly two and half by three inches, to replace, after closing the dural opening, the two one inch disks of bone which had been removed by the trephine. These had been wrapped in a towel wrung out of warm carbolic solution, which in its turn was then placed in a jar immersed in warm water. The operation lasted fully half an hour before the bones were put back. It is now

¹ Great sensitiveness of the dura, spoken of by experimenters, was strongly marked in this manipulation.

² Supporting Schramm's view that the salt infusions have only a temporary benefit. *Centr. bl. f. Chirurg.*, No. 30, 1886.

³ Horsley: *Topography of the Cerebral Cortex*, *Amer. Journ. of the Medical Sciences*, April, 1887.

¹ See an article on the Surgical Treatment of Brain Suppuration following Ear Disease, by the writer, *Medical Record*, April 9, 1887.

² A Contribution to the Pathology of Hemianopsia of Central Origin, by E. C. Seguin. *Journ. of Nerv. and Mental Diseases*, January, 1886.

³ A. Poncet: Des greffes osseuses dans les pertes de substance étendues du squelette. *La France Médicale*, 1886, t. ii. No. 132.

seven weeks since the operation, and you will perceive, in the patient who is now submitted to your inspection, that the wound is all healed, save at one point over the eyebrow, where an opening was made recently downward through an obstructed suppurating frontal sinus to the nose, to permit drainage, and that no communication leads to the circles of bone, which can be felt above the point, solid, resisting, and painless. Later still, Dr. McBurney, at St. Luke's Hospital, has repeated this procedure, after an exploratory operation, for brain disease.¹ This plan, if corroborated by further experience, will relieve our minds of the objections held to large openings in the skull, and will facilitate greatly bolder surgical explorations.

Up to the present time the opening of the skull for the extraction of a contained tumor has been resorted to eight times, once by Bennett and Godlee in 1884,² three times by Horsley³ in 1886—which with the one above narrated make up the five cases of removal of a tumor, the result of which in two of Horsley's is yet unknown, but presumably it was a successful one.⁴ Of the three other cases, in one by Hirschfelder and Morse⁵ in 1886, the tumor was found, but only a part was removed, the patient dying shortly afterward from suppurative encephalitis; in the two remaining cases no tumor was found, though in the one operated on by me and reported at length in THE MEDICAL NEWS for March 5, 1887, at the post-mortem, two and a half months later, a tumor was found pressing upon the cerebellum and spinal cord. The last case is the one reported by Dr. G. M. Hammond, and made the subject of the paper succeeding this, to be read before this Society, in which the search nearly succeeded, as was shown afterward at an autopsy. The cause of the symptoms was the presence of three cysts adjacent one to another, and thought to be of hydatid origin.

For further remarks on the difficulty of relieving the pressure of a tumor of the brain by surgical treatment, I must refer you to the recent collection of 100 cerebral tumors by Dr. W. Hale White,⁶ the excellence of which I have elsewhere⁷ commented upon. I dare, however, to repeat as facts of weight gleaned from this paper, that multiple tumors are common and that only about ten per cent. of all kinds of growths, and only four per cent. of the sarcomatous tumors, could have been removed by operation, *even though a correct diagnosis could have been made.* Concerning the latter point the members of this Society can better judge of its difficulties than I can—but the art of cerebral localization is, thanks to the efforts of neurologists and physiologists, developing with great rapidity, and with such help surgery will be of more and more avail in rescuing patients otherwise condemned to paralysis and death.

¹ Had the present case permitted, the same course of replacing the trephined bone would have been followed.

² Lancet, 1884, p. 1060, and 1885, p. 13.

³ One published in extenso in British Med. Journ., Oct. 9, 1886, and two others briefly alluded to in the Amer. Journ. of the Med. Sciences, April, 1887.

⁴ See his Article cit. supra.

⁵ Pacific Medical and Surgical Journal, April, 1886, p. 40.

⁶ Guy's Hospital Reports, 1885 and 1886, vol. xxviii.

⁷ THE MEDICAL NEWS, March 5, 1887.

REMARKS BY DR. BIRDSALL.—In concluding, I may be allowed a few remarks concerning the tumor which was found. Owing to its large size, so much of the occipital lobe was compressed by it that the case is of little value for the purpose of determining the limitation of the visual area in the occipital lobe. The growth was a sarcoma, originating in the meningeal structures, and producing destruction of the cerebral tissues by pressure alone; no part of it was infiltrated into the cortex. The absence of severe headache in this case should be noted, as it is usually a prominent symptom of tumor involving the meninges.

That convolutions may be reduced to the thinness of paper by such a process is well known, and in this case the apex of the occipital lobe was literally crushed between the tumor and the cranium, while the more frontal portions were compressed in that direction. The parts beneath the tentorium were also compressed, as the symptoms during life led us to infer. The remarkable feature of cases with so large a tumor is not so much that they give rise to localization symptoms, as that they exhibit so few.

One of the most important lessons that the study of cerebral tumors teaches is that growths remaining limited to the meninges may attain a large size before disturbing the function of neighboring parts of the brain; frequently giving rise to less marked symptoms than very small growths, which infiltrate the cortex. In the deeper conducting tracts of the brain, where fibres run more in parallel courses, growths may attain large size without producing much irritation or destruction, by slowly pushing the fibres aside; this gradual expansion could not go on in the felt-like mass of fibres in the cortex without destructive action resulting. Thus, in one of my reported cases¹ a sarcoma the size of a hazelnut displaced the cortex of the arm area, producing spasm and paresis of the arm. While a similar growth under the same area of the opposite hemisphere, but a few lines deeper yet not reaching the cortex, gave rise to no symptoms whatever. Again, when tumors destroy by pressure, the softer mass of the growth may injure less than the rigid walls of bone against which the cerebral tissue is compressed; so that regions away from the tumor may give signs of impairment before those in contact with the tumor. These are some of the contingencies (and there are others) which will probably always constitute obstacles to the correct localization of tumors, as guides to surgical operations for their removal.

While we have much to hope for respecting a more complete knowledge of the functions of different cortical areas and subcortical tracts of the brain, increase in this class of facts for the practical purposes of brain surgery will be of little avail. Indeed, our knowledge of functional localization is already in excess of other factors in the problem. The degree of interference which neural tissue will sustain in different regions is an "unknown quantity" to such an extent that it renders further refinement of functional localization almost super-

¹ Arch. Med., vol. ix. No. 3, 1883.

fluos. And it may be said that from the standpoint of functional localization we are probably as well able to act as the surgeon's guide in the removal of cerebral growths as we ever shall be. This is not a designedly pessimistic statement, but rather, a hint that there will probably never be a better time than now for modern surgery to come to the front, and with her vastly improved methods, seek to eliminate to the extent possible the dangers and difficulties which yet attend operative work upon the human brain. Surely, the extreme fatality of intracranial neoplasms is a high warrant for taking an extreme surgical risk. The coöperation of neurological science and surgical art, in the present state of each, can hardly fail to build up an experience which will in some cases save life that would otherwise be lost.

A CASE OF NEPHROLITHOTOMY DURING THE FIFTH MONTH OF PREGNANCY.

BY LOUIS McLANE TIFFANY, M.D.,
PROFESSOR OF SURGERY IN THE UNIVERSITY OF MARYLAND.

ON February 16, 1887, I saw, with Drs. E. P. Irons and G. W. Miltenberger, Mrs. M., aged twenty-seven years. Her history showed that for several years she had suffered, at irregular intervals, with pain in the left loin, about the region of the kidney; occasionally the pain would shoot downward to the groin. She had been often under medical treatment. On two occasions when she applied to Dr. Irons, during the past few years, pus existed in the urine, but in small quantity; blood was never noticed in the urine.

Seven months ago the patient under consideration married, and two or three months later became pregnant. Two months ago, being three months pregnant, she slipped on the ice and fell forcibly in the sitting posture; great pain in the left side and loin was now complained of, and Dr. Irons was called to attend her; he found it necessary to give large doses of opium. Mrs. M. was no longer able to lie on the left side in bed, and found some relief when bending forward and to the left. A fortnight after the fall Mrs. M. attended a ball, wearing her wedding dress, which was extremely tight, thanks to pregnancy; during the whole evening she experienced much pain in the loin. Since the ball, a period of about seven weeks, pain in the region of the left kidney has been constant; hyperæsthesia has been marked, not only over the same region, but also over the left half of the abdomen; vomiting frequent, appetite capricious; urine ill-smelling, and contained much pus; temperature elevated, pulse increased in frequency; rest either night or day was only to be obtained by opiates.

Dr. Miltenberger now met Dr. Irons in consultation, and a day or two later I was added to the council. The diagnosis made prior to my seeing the patient was "pyelitis, probably from renal calculus." In this opinion I concurred, and operated at my first visit for the removal of the stone. Ether was employed as the anæsthetic, and the operation conducted under antisepsis. Under anæsthesia no

tumor or hardening was made out in the loin. At my request, Dr. L. E. Neale examined the generative organs by touch, finding the pregnancy normal.

The usual incision below the last rib and parallel to it was made, the kidney exposed and examined; to sight and touch it was normal, moving freely with respiration. The fat and fascia around the kidney seemed healthy. I then exposed the kidney as far upward as possible and found an elastic spot just under the rib. I here entered a knife, dividing the kidney tissue and evacuated ill-smelling pus. This abscess was in the kidney substance, and my finger discovered no communication with the pelvis. I then explored the inside of the abscess carefully with a probe, which in a moment passed somewhat deeply and touched a stone. Along the probe was passed a director, in the groove of which I slid a pair of slender forceps, opened them widely tearing kidney substance and at once passed my finger into the pelvis, where it rested in contact with a stone.

The calculus was easily extracted. I passed a black woven bougie nearly its whole length down the ureter and greatly regretted that I had not an instrument long enough to be passed into the bladder, in order to test the possibility of such a manœuvre.

The wound was thoroughly irrigated with bichloride solution, 1:4000, a large drainage-tube inserted into the pelvis of the kidney, and an iodoform gauze dressing applied. Vomiting occurred but twice or three times after the operation; pain and hyperæsthesia ceased; convalescence was rapid, the thermometer marking 99° the evening of the third day after operation.

The drainage-tube was removed on the sixth day; four days later no urine passed from the wound in the back.

Three days after the removal of the drainage-tube the patient complained of pain along the course of the ureter, the temperature and pulse rose, there was hyperæsthesia over the left half of the abdomen, and vomiting; four days later the symptoms ameliorated and the patient's condition became normal. The discomfort, etc., was attributed to the passage of urine along the ureter after the removal of the tube from the kidney, carrying, of course, the "cleanings" of the upper part of the ureter.

A slight fever followed the removal of the drainage-tube from the kidney in the patient upon whom I did nephrolithotomy in 1885 (THE MEDICAL NEWS, May 23, 1885), but I did not deem the small elevation of temperature worthy of attention. With Mrs. M. the fever was accompanied by frequency of micturition and slight bladder tenesmus, as though there might be irritation where the ureter passes through the coats of the bladder. Inasmuch as pus was present in the urine, and no urine came through the loin, there was, of course, no obstruction in the passage from the kidney to the bladder; while the drainage-tube remained in the wound, there was little or no pus in the urine, showing a comparatively healthy right kidney.

At present the wound in the loin is healed, the urine contains pus in diminishing quantity, and the pregnancy progresses physiologically. The stone is

calcium oxalate and weighs thirty grains; it is shaped somewhat like a cocked-hat.

I have entitled this case one of nephrolithotomy, according to Morris's definition, for there was no tumor in the loin even when searched for under anæsthesia. The abscess found was strictly within the kidney tissue, the kidney not being enlarged so as to be recognized as a tumor. The abscess, I believe, was formed in a Malpighian pyramid, the outlet of which was closed by the stone lodged in a calyx; my probe passed through the corresponding papilla, and grated against the obstruction at once.

This is, I think, the first reported case of nephrolithotomy being done upon a pregnant female. Gilmore's case was a nephrectomy. It is interesting to note that in no wise did the operation or the pregnancy interfere at all one with the other. The movements of the child were not noticed as more violent than natural, at the time of operation or subsequently, and there was nothing denoting disturbance of the reproductive system.

RHIGOLENE AND OIL AS A VEHICLE FOR SPRAYS.

PRELIMINARY NOTE.

By AUGUSTUS STABLER, M.D.,
OF LAWRENCE, MASS.

FOR several years past I have been alive to the fact that oil is far less irritating to the nose and throat than any mixture or combination that has water as a basis. This irritating quality is not wholly overcome by the addition of glycerine or honey to the water, and these substances greatly impede its passage through an atomizer. Water, moreover, is not a good basis for spray, for it collects and condenses too readily—hence the common observation that a spray of water does not pass the chink of the glottis except in very small amount. Olive oil or almond oil may be passed through an atomizer if the apparatus be of suitable construction, in perfect working order, and kept at a warm temperature, but they require a higher pressure of air and are very liable to gum the tube or orifice.

Less than a month ago, the idea occurred to me that perhaps a mixture of rhigolene with one of the expressed oils would be free from the above objections. This proved to be true. A mixture of two drachms of rhigolene (by measure) with six drachms of olive oil, or almond oil, requires no more pressure than water, to convert it into the finest and most permanent spray that I have ever seen issue from an atomizer.

If sprayed into the mouth, the lips being closed upon the tube and the patient being instructed to breathe very quietly through the nose, the spray issues like a cloud of smoke from each nostril, and is so permanent that I have observed the little globules of oil floating in the sunlight more than thirty minutes after the atomizer ceased. It is perfectly unirritating to the most sensitive tissues, and, indeed, seems in some cases to act as a mild local anæsthetic. This spray does not catch fire when directed into an uncovered lighted gas jet, and does

not produce general anæsthesia, thus being free from the objections attending the use of pure rhigolene.

In connection with my friend, Mr. John H. Greer, an accomplished pharmacist of this city, I have made a large number of experiments for the purpose of determining what useful drugs are soluble in this mixture.

We find that the following are readily soluble:

Copaiba balsam, cubebæ ol., camphor, eucalyptol, iodine, iodol, iodoform, menthol (crystals), naphthalene (crystals), phenol (crystals), resorcine, sassafras ol., salol, terebinthinæ ol., thymol.

Resorcine is insoluble in rhigolene, but dissolves in olive oil to the amount of nearly five per cent. The mixture will hold about three per cent. in solution. Every oil that we have thus far tried seems to be readily miscible with the rhigolene and sweet oil, so that the entire list of essential oils and turpentine may, *a priori*, be added to the above list.

We have not found any astringent that will dissolve in olive oil or in the mixture containing it, but *iodo-tannin* may be prepared as follows:

Take a saturated tincture of iodine and dissolve in it as much tannin as it will hold. This will mix with castor oil in any proportion, and the mixture may be thinned with rhigolene to the desired consistence. It makes a very handsome, clear red solution, and though slightly irritating, is not excessively so, and the irritation very rapidly subsides.

Cocaine is insoluble in the olive oil and rhigolene mixture, but like tannin makes a perfect solution if first dissolved in alcohol and then mixed with castor oil and rhigolene.

It has been my object in this paper merely to indicate the wide range of applicability of a mixture of rhigolene with oil as a basis of sprays, and leave a discussion of results to future papers, and perhaps to other observers whose clinical opportunities are greater than mine.

8 CHARLES STREET, LAWRENCE, MASS.

THE STOMACH:

IMPORTANT POINTS IN ITS ANATOMY AND PHYSIOLOGY,
AND THEIR APPLICATION IN PRACTICE.

By A. W. P. LEUF, M.D.,
OF PHILADELPHIA.

THE object of this note is briefly to call attention to the normal position of the stomach, its tubular shape, some points in its physiology, and their bearing upon treatment. The paper is the outcome of five years of thought, some vivisections, post-mortem observations, and clinical experience. It is due to Dr. A. H. Buckmaster, of Brooklyn, to acknowledge that he was the one who, more than five years ago, called my attention to the tubular condition of the stomach, as shown in Kussmaul's *Physiology*.

The normal position of the stomach is almost vertical. This is best noticed along the lesser curvature, for the greater has a long roundabout curve, which, when the organ is distended, gives the impression of its being horizontal in position. The pylorus is relatively fixed; the cardiac orifice absolutely so. The lesser border connecting them is

also capable of but limited motion. The greater margin of the stomach is unattached and freely movable. During distention, the gastric pouch is forced mainly downward and forward, as well as upward and to the left. The lesser curvature is comparatively stationary, while the greater is the most movable portion of the organ. On this account the stomach, when viewed along the pyloric or visible half or third of its border, appears more horizontal in proportion as it becomes distended.

The cardiac pouch, instead of projecting to the left during distention, actually moves upward against the base of the lung, and with but a moderate inclination to the side.

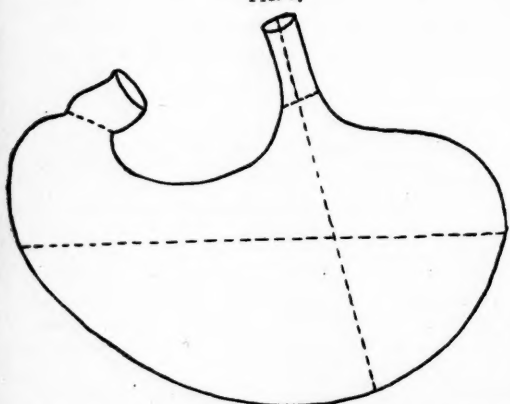
The pyloric orifice is variously situated in front of the upper lumbar vertebrae, and rarely more than two or three centimetres (about one inch) to the right of the median line. It is often on the median line, and occasionally all of the stomach lies wholly within the left abdominal cavity.

The heart normally projects further to the right than does the stomach.

The cardiac orifice is further from the cardiac end of the stomach and relatively nearer the pylorus than is generally supposed. It is almost midway between the two extremities of the organ, but nearer the cardiac end. The oesophagus, instead of entering the stomach at right angles, or nearly so, forms a very obtuse angle with the right or lesser border.

The shape of the stomach varies with the degree of distention. The same, of course, is true of the thickness of its walls. The shape of the stomach, as generally and erroneously pictured, is shown in Fig. 1, which is an outline of the organ shown in

FIG. 1.



Outline of stomach pictured in Gray's *Anatomy*, being an illustration of what is far from the normal shape and position of the organ.

Gray's Anatomy. The normal shape and position of the distended organ are depicted in Fig. 2, while its changed appearance is shown in Fig. 3, when empty. This latter is quite appropriately called a "tubular stomach." Its calibre is very small, the mucous membrane deeply corrugated or folded, the muscular coat contracted and thickened, and the external measurement of the stomach not much

greater than that of the jejunum when moderately distended. It is very thick, however, and quite round instead of flat. The cardiac end is not ob-

FIG. 2.

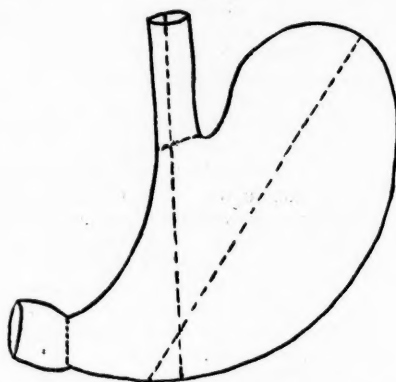


Diagram of a moderately distended stomach, showing its correct anatomical shape and position.

literated in the tubular condition, but appears jutting upward very much like the hump on Punch's back.

FIG. 3.

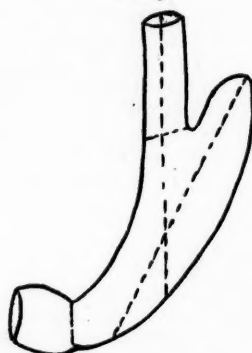


Diagram of an empty, contracted, so-called "tubular," stomach, showing that the position of the two orifices and lesser curvature remain undisturbed during the distensile changes of the viscus.

Why is the stomach ever tubular? is a proper question. Let us see. In an experience that includes the making of many hundreds of autopsies, especially in cases of sudden death, it has been my good fortune to see quite frequently the human stomach in tubular form. As well as I now remember, I cannot recall an instance in which a perfectly healthy stomach was not found to be tubular in a person having met with sudden death eight or nine hours after a meal. For instance, I have, on several occasions, been called to examine the bodies of apparently healthy laboring men, who, having eaten a supper between 6 and 7 P. M., spent a quiet evening, and then went to bed, in which they died the next morning. These deaths were due to various causes, such as cerebral apoplexy, sudden heart failure, ruptured aneurism, fatal accidents, murder, and one

curious case of brónchial lymphadenoma, which choked the patient in less than an hour by compression of the trachea and primary bronchi. In all of these cases death occurred before there was time or opportunity to breakfast, and when nothing had been taken during the night. These stomachs were all empty and tubular—in other words, contracted, as we frequently find the colon, especially on the left side.

Gaseous distention of the stomach, though frequently found, is not the rule, nor is it strictly physiological. The firm contraction of every part of the alimentary tract, when empty, is normal and its distention with gas is abnormal.

These post-mortem experiences amply show that the tubular stomach is a fact in human beings, and exists when it has normally contracted upon the last remnant of its nutritive contents.

Vivisection upon dogs, cats, and rabbits, establishes the same facts with reference to them. It is only necessary, and especially in the dog, to wait a much longer time for the stomach to become empty and hence tubular. It may require as long a time as forty-eight hours. Care was taken not to disturb the natural process by vomiting the dogs or other animals. They all recovered and regained their liberty, or were sacrificed at the same time for some other end. Some full and partly full animal stomachs were also examined. The abdomen was opened and the walls elevated so that the stomach could readily be seen. The organ itself was not touched. A soft rubber catheter, connected with a small glass funnel, was introduced a short distance into the oesophagus, down which a little water was poured. In a moment, the stomach was seen to become slightly distended. This was followed by contraction, and the water poured into the duodenum. Its passage through the stomach occupied but a few seconds, and produced a double wave, one of distention, marking the entrance and passage of the first part of the water, and the other, one of contraction, indicating the progress of the latter portion of the liquid. In these instances the water was lukewarm; when cold or hot, it sometimes passed a little slower, and at other times not, and this difference seemed to be entirely due to the contraction of the pylorus caused by the rise in temperature. The difference in the time required to pass through, however, was not great.

When the water was passed in continually, and especially in large amount, the stomach became moderately distended, but the pylorus remained partly open, so that most of the water continued passing down, and could readily be seen by the waves and vermicular motion it generated in the gut.

In the full and partly full stomachs, the water, instead of mingling with the food, as we are so generally taught to believe, passed along rather quickly between it and the lesser curvature toward the pylorus and through this opening into and down the gut.

In this connection it is well to mention an observation made by Dr. Benjamin F. Westbrook. He noticed during the process of washing out stomachs that when he attempted to siphon the water

back, it failed to return in several instances. In a letter to me, upon the subject, he writes as follows: ". . . instances in which, on attempting to wash the stomach, the water all mysteriously disappeared, and would not be coaxed, bullied, or cajoled into returning through the siphon—it had, evidently, passed directly onward into the duodenum; and the inference is that, in normal stomachs, with a proper normal tonicity, the tubular form was maintained during the period of rest, and that such stomachs would allow fluids to flow directly through into the duodenum."

The reason for this seems clear. The pylorus is decidedly reflex in its action. Unirritating fluids, or semifluids make no impression upon it, and they are allowed to pass through the partly open orifice. Solids and irritant fluids stimulate it to firm contraction and consequent occlusion. In exceptional cases, irritant bodies may have entered the stomach, which so stimulate its walls to contraction, that they are forced through either one or both of the two orifices. But this is an abnormal condition.

As soon as food, therefore, has been sufficiently reduced in consistence, it no longer affects the pylorus, and is permitted to pass through, and thus the stomach contents are diminished, except as far as the removal of some directly through the gastric wall. Water, being an unirritating liquid, readily passes through. It meets with no obstacle, therefore, in an empty stomach; does not linger there, but simply passes directly through to the gut. When the stomach is full of solid food the same is true, only that the water passes along the lesser border with a large bolus of food on one side, instead of gastric wall all around. When the stomach contents are largely fluid, the water most likely mingles with this, and is not allowed to pass so quickly.

These few facts are of daily use in practice. I will give reasons and clinical experience. Of course, a knowledge of the correct anatomical position of the stomach is of great value to the laparotomist having designs upon it. No more need be said on that score.

The experiments of several observers, whose names are well known to physiology, upon the secretion of gastric juice in the human stomach, through gastric fistulæ, have determined that this juice flows only periodically. It is called forth by the stimulus of food in direct contact with the gastric mucous membrane. Direct contact is required. The intervention of normal gastric mucus prevents or modifies the reflex action that would cause a copious outpouring of the gastric juice, for it prevents direct contact between the food and mucous membrane.

The flow of mucus is constant. It is especially noticeable during the intervals between the periods of digestion. Foreign bodies, when introduced within the empty stomach, whether it be distended with gas or not, increase the flow of mucus without causing the secretion of the digestive juice. Mucus is normally secreted during the night. Some of its liquid portions are absorbed. That which is left behind is, therefore, thick and tenacious.

This teaches us that a normal stomach in the morning contains a considerable quantity of thick,

tenacious mucus that is spread over, and adherent to its wall. It also shows that, if food enters at this time, it will become covered with a coating of the tenacious mucus, and the gastric wall being already so covered, there cannot be the requisite direct contact between the food and stomach. The mechanical stimulus of food, however, causes an increased flow of mucus. This renders that already present less tenacious and eventually permits the food to touch the mucous membrane and a flow of gastric juice, hitherto delayed, is the result; then digestion begins.

The tubular or contracted stomach with its puckered mucous lining, always normal in the morning before breakfast, is not in a condition to receive food. The mucus it contains interferes with prompt digestion and its firm contraction is an obstacle to the free circulation of blood through its vessels.

A goblet of water, taken before breakfast, does several things. 1st. It passes through the stomach into the small intestine in a continuous and uninterrupted flow. 2d. It partly distends the stomach, stretching, and, to some extent, obliterating the rugæ. 3d. It thins and washes out into the gut most of the tenacious mucus. 4th. It increases the fulness of the capillaries of the stomach, directly if the water is warm, and indirectly, in a reactionary way, if it is cold. 5th. It causes peristalsis of the whole alimentary tract, wakes it up (so to speak), and gives it a morning's exercise and washing.

The beneficial effects of a drink of water before breakfast may account for the desire for water at this time of the day, particularly on rising. How often we find that when we are very hungry (when our stomachs are tubular and filled with mucus) we want a drink before beginning to eat.

Moderately cold water taken into the stomach chills locally, it stimulates to contraction and produces a reaction. A warm, healthy glow succeeds the contraction due to the cold. The clean and hyperæmic mucous membrane is in excellent condition to receive food, which now can come in direct contact with the bare gastric wall. The reflexes act to best advantage. A copious flow of digestive juice is the result, and the food not being covered with mucus, digestion is easy and rapid, for it takes place under the most favorable conditions and in a minimum time.

Care must be taken not to give cold water when the circulation, either local or general, is so feeble as to make reaction improbable. We should not risk it in advanced age, nor in the feeble, whether old or young, nor should it be given in local troubles like chronic gastric catarrh. In these cases it is best to give warm, or hot, water. The addition of salt is very beneficial, both as regards taste and the effects of sodium chloride in preventing the formation of parapeptones, as was first shown by Dr. R. G. Eccles, of Brooklyn. Care must be taken not to give cold water when it will induce exaggerated reflexes, for instance, in the case of children, where it has been known to produce fatal intussusception of the bowel, or a severe "cold," or diarrhœa at all ages.

Dr. A. G. Kimberly, of Brooklyn, informs me that he has noticed and experienced the beneficial effects of sea-water digestion, and says that sea-going people are often in the habit of drinking sea-water before meals to improve the digestive process. "It not only does this, but sometimes entirely prevents nausea on rising," says Dr. Kimberly.

I have frequently ordered patients suffering with chronic gastric catarrh to drink a glass of warm or hot water before breakfast. It was followed by gratifying results; salt may be added with additional benefit in almost all instances. In fact, it is proper to give water before meals, as it washes out of the stomach the mucus that has accumulated since the preceding meal. When taken during meals its effects are good in washing out digested food and exposing new surfaces to be acted upon by the gastric juice.

The writer, at one time thinking it inconsistent with the laws of physiology to eat soup before meals and thus dilute the digestive fluid, took his after the usual meal. This did not agree nearly as well as taking it at the beginning. Such a time-honored custom, however, as eating soup at the beginning of a meal, could only have been so persistently adhered to because of its having been found by experience to be the most appropriate time. It does exactly what warm or hot water with the addition of salt does, and more, in that it is nutritive and excites the flow of gastric juice.

Pepsin is a catalytic body and a given quantity will work indefinitely provided the effects of its work are constantly removed so as to enable the catalytic body to come in contact with new material. This has again been recently shown by Dr. Eccles in his experiments on drugs and digestion.

Another fact worthy of note in this connection is that vomiting may very often be prevented by a patient remaining on the right side. This I would account for principally in two ways:

First. Pressure by the liver upon the stomach and duodenum is prevented.

Second. Gravity attracts the gastric contents to the pylorus, and the spleen, by its weight, tends to crowd the food out of the cardiac pouch toward the duodenal orifice. I do not mean to say that this postural treatment will always prevent emesis, but I do claim that it will often do so when nothing else will, especially in those cases where vomiting is due either to pressure from the liver, relaxation of the cardiac orifice, spasm of the pylorus, or general irritability of the stomach, or any or all of these combined. This fact has often been clinically confirmed.

The following is a brief summary of the major points I have sought to bring out in this note:

1. The position of the stomach is more nearly vertical than horizontal.
2. An empty stomach, if in good tone, is always tubular.
3. A tubular stomach should be the rule on rising.
4. Non-irritating liquids pass directly through the tubular stomach.
5. They do likewise if the stomach contains food, and in such cases pass along the lesser curvature.
6. The morning mucus contained in the stomach hinders or retards digestion.

7. Water drank before meals dilutes and washes out this mucus, stimulates the gastro-enteric tract to peristalsis, and causes hyperæmia of its lining membrane, thus greatly aiding digestion as well as elimination.

8. Cold water should be given to those who have the power to react, while warm or hot water must be administered to all others.

9. Salt added to the water is very beneficial in preventing the formation of unabsorbable parapeptone.

10. It is perfectly proper to drink water before, during, and after meals.

MEDICAL PROGRESS.

RENAL CALCULUS TREATED BY SOLVENTS.—DR. RALFE exhibited at a meeting of the Medical Society of London, reported in the *British Medical Journal* of March 26, 1887, a specimen of renal calculus passed after six weeks solvent treatment. It was oat-shaped, eroded on the surface, and measured one-third of an inch in length, and weighed three and a half grains. It was composed chiefly of oxalate of lime, with a few crystals of uric acid scattered over the surface. The remedies employed were lithia and turpentine in a mixture and Dover's powder at night. The patient was directed to drink at least three pints of filtered rain-water daily. Under this treatment the urine, which at first had a specific gravity of 1.025, and contained much blood and pus, became clear, and the specific gravity fell to 1.014, while the attacks of colic diminished. Dr. Ralfe's method differed from that proposed by Sir William Roberts in that he did not seek to diminish the size of the calculus by chemical solvents, a doubtful and difficult process, but to check its growth by keeping the specific gravity of the urine low, and also by diminishing existing pyelitis. Dr. Ralfe observed that there were many calculi small enough to pass easily down a ureter, which were prevented doing so by the swollen condition of the orifice. He illustrated this by a specimen which had been retained for several days, owing to the patient suffering from gouty pyelitis, though the concretion was quite minute; as soon, however, as the pyelitis was relieved, the calculus slipped down easily. In addition to distilled water and turpentine, Dr. Ralfe spoke highly of benzoate of lithia or potash. The mode of treatment should be adopted in the following instances: 1, when the calculus was recently formed and still small, and was retained chiefly by the swollen condition of the mucous membrane of the kidney; 2, in recurrent calculi—the pisiform concretions of elderly people, in these cases the calculi passed before the administration of remedies were of the size of a pea, afterward they diminished to that of a mustard-seed (a specimen shown), or ceased altogether; 3, in cases when, owing to the obesity of the patient or his broken health, nephrolithotomy was not advisable. In these instances it might be hoped that the distilled water might at length lead to the disintegration of the calculus, as in a case reported by Dr. Ralfe (*Path. Soc. Trans.*, vol. xxxiii.), whilst the terebinthine remedies undoubtedly diminished the pyelitis and the tendency to colic.

MR. B. JESSETT said that larger calculi than those

shown had often been passed without treatment, the benefit of which was rather in the increase of the amount of urinary flow. He doubted whether there is any really solvent action.

DR. RALFE said he attached the greatest importance to relieving the pyelitis. He certainly did think that a solvent action is produced under favorable circumstances.

THE PROPHYLAXIS OF THE TEETH.—MILLER, of Berlin, in an article upon the care of the teeth, published in the *Therapeutische Monatshefte* for March, 1887, gives the following as useful formulæ:

R.—Calcii carbon. præcip.	. . .	33¾.
Cort. chin. fusc.	. . .	315.
Conch. præparat.	. . .	315.
Pulv. myrrh.	. . .	37½.
Pulv. carophyll.	. . .	33¾.
Ol. cinnamoni	. . .	gtt. 10-15.
M. exact. f. pulv.		

The following is recommended as an efficient tooth soap:

R.—Magnesiæ carbon.,		
Rhiz. irid. florent.,		
Talci,		
Sapo. medicat.	. . .	āā grs. 75
Ol. menth. pip.	. . .	gtt. 10.
Mucilag. gum. arab.	. . .	q. s.

After a series of experiments the writer has fixed upon the following mouth-wash as the best germicide and antiseptic for use in the mouth:

R.—Acid. thymic	. . .	grs. 4.
Acid. benzoic	. . .	grs. 45.
Tinct. eucalypt.	. . .	33¾.
Alcohol. absol.	. . .	325.
Ol. gaultheriæ	. . .	gtt. 25.
(Sive ol. menth. pip.)	. . .	gtt. 20.)
M. D. S.		

Of this liquid a teaspoonful should be put in a glass of water, and the mouth should be rinsed after each meal, and before retiring.

AN ECONOMICAL METHOD OF PREPARING ANTISEPTIC GAUZE.—DR. GERSTER, of New York, in an article in the *New York Medical Journal* of April 2, 1887, describes his method of preparing gauze as follows:

Gauze—that is, *cheese or tobacco cloth*, as it is called by the trade—can be procured at any dry-goods store for a trifling sum of money. Twenty-five yards of this fabric are divided into four equal parts. Each of these is folded eight times, and the piece is rolled up loosely and tied with a string. These four pieces of gauze are next made absorbent by freeing them of their oily contents adhering to the cotton from the gin or mill. They are put into a common wash-boiler, covered with water to which a pound of washing soda or saleratus was added, and boiled for an hour. After this they are rinsed in cold water for ten minutes to free them from the soda, are passed through a clothes-wringer and placed in a stone or glass jar or an enamelled kettle, filled with a corrosive sublimate lotion of 1 to 1000 strength, to remain therein for twenty-four hours. From this they

are passed through the wringer again, and hung up to dry over night when the air is freest from dust. The string put about each piece should not be removed until the time of drying, as it will keep the folds from getting disarranged. The dried pieces are ready for use, and will keep clean wrapped in a towel or put away in a jar.

Whenever dressings are used, suitably sized compresses, each having eight folds of cloth, can be cut out of the piece with a stout pair of sharp scissors.

Iodoformized gauze is made by sprinkling iodoform dust from a pepper-shaker uniformly over the moist compress, and rubbing it thoroughly into the meshes between the fingers.

An excellent substitute for gauze in an emergency is common cotton batting well soaked in a solution of corrosive sublimate (1 to 1000). The package of batting is unrolled in an ordinary manner, and cut into square pieces of desired size. Each of these is refolded into a small square and thoroughly kneaded in a wash-basin filled with the mercuric lotion till complete saturation is evident. Well wrung out, each piece is unfolded again to its original shape and is ready for use.

Any clean textile fabric of cotton or linen, soaked in mercuric lotion, will be a good antiseptic dressing.

CONDURANGO IN CANCER OF THE STOMACH.—Fifteen years ago there was introduced from Brazil a remedy which was claimed to be a specific for cancer. Since then, as before, other remedies have been similarly vaunted, and none have stood the test of experience. The remedy in question was condurango bark, of which a trial was made at the Middlesex Hospital, the negative results being read before the Clinical Society by Messrs. Hulke and De Morgan (*Clin. Soc. Trans.*, vol. v.). In Germany almost the only favorable report came from Professor Friedreich, who related instances of its value in gastric cancer. Since then it has fallen much into disrepute, having been regarded as little better than a stomachic, and prescribed thus with advantage (Wilhelm, *Year-book of Treatment*, 1886, p. 49) in cases of carcinoma and ulcer. But Dr. Riess, of Berlin, has just published (*Berl. klin. Wochensch.*, March 7th) some striking testimony to the value of the drug in gastric carcinoma, more conclusive than any that has hitherto appeared. It is noteworthy that he doubts whether its qualities as a stomachic are better than those of other drugs of that class, and that he has not found it efficacious in cases of cancer where the stomach is not primarily involved. (Messrs. Hulke and De Morgan's reports did not deal with gastric cancer.) It was in cases presenting the symptoms of cancer of the stomach (many with a tumor) that the best effects were noticed. In 105 such cases—*i. e.*, where gastric cancer was diagnosed—treated at the General Hospital from 1878 to 1886, condurango was prescribed, and in no case, even in those in the last stage, without some effect. The drug was often given every hour—the total amount per diem reaching ten grammes of the decoction—and continued for long periods without ill effect. The appetite improved in a few days, vomiting and pain diminished, and eventually ceased, and the patient gained in weight. Whether life is actually prolonged is, of course, difficult to prove; but Riess quotes statistics which show that the cases treated with condurango, both the fatal ones and those discharged in improved health, remained

much longer in hospital than those not treated by the drug. He even states that of sixty-four cases in which a palpable tumor was present, in seventeen it diminished in size, and in eight quite disappeared; and he details three cases of such disappearance of obvious tumors, which, subsequently dying, presented only cicatricial structure, with no trace of malignant disease. Obviously, before we can accept such cases as examples of the cure of cancer we must be certain that the original diagnosis was correct, and the same scepticism may be allowed respecting the whole series of cases. For cancer of the stomach may not only be latent, but may be simulated by non-malignant ulceration, as every physician knows. Dr. Riess fairly discusses this point, being quite alive to the objection. He claims, at least, that condurango has some local effect upon a diseased stomach, and considers that in all suspected cases it should be prescribed. It need hardly be pointed out that local action as here claimed is a different thing from specific action in cancer generally, which was sufficiently disproved by the observations at the Middlesex Hospital.—*Lancet*, March 19, 1887.

CONTAGION OF EPIDEMIC PAROTITIS.—ROTH reports three interesting observations upon this point. The first was the case of a woman brought to the hospital with parotitis; eighteen days after her arrival a neighboring patient became ill with the same disease; on the same day a patient outside the hospital, whom the hospital physician had visited after making his rounds, was attacked by parotitis.

In the hospital the bed was carefully disinfected after the patient suffering from parotitis had vacated it. A diphtheritic patient who was placed in this bed developed parotitis eighteen days afterward. Roth considers, therefore, eighteen days to be the period of incubation. *Fortschritte der Medicin*, February 15, 1887.

TREATMENT OF VOMITING ASSOCIATED WITH UTERINE CATARRH.—AUDHOU describes the following treatment in the *Revue de Thérapeutique* of March 1, 1887.

The patient is to take at evening, before retiring, one of the following pills; the dose may be increased to two or more if needed:

R.—Ext. nucis vom. gr. 15.
Ext. belladonnæ,
Ext. opii aa gr. 3.
M. div. in pil. 20 in num.

Twice daily, at 11 A.M. and 7 P.M. the patient should take 30–40 drops of tincture of ferric tartrate (French Pharmacopœia), a preparation corresponding to the tartrate of iron and potassium of the U. S. Pharmacopœia.

The patient should also take, morning and evening, a vaginal injection of Parthenium (Feverfew) as follows:

R.—Matricaria Parthenium . . . 35.
Boiling water O2.

An infusion should be made and to the liquid resulting a small quantity of cologne should be added; the temperature of the injection should be moderately high.

In addition, at least one full bath should be taken

weekly, to which should be added an alkaline salt as follows:

R.—Bicarbonate of soda . . . ʒ8.
Volatile oil of lavender,
Volatile oil of mint . . . āā m15.

DUAL CONCEPTION.—DR. NOWLIN, of Nashville, Tennessee, reports in the *Southern Practitioner*, for March, 1887, the case of a negro who gave birth to twins, one a pure African, with all the typical features of that race, and the other a very bright mulatto, exhibiting evident characteristics of the Caucasian race.

The mother was a pure black, with all the typical features of the African, as was also the husband. It became an interesting inquiry to account for the difference in color of the two children. Upon inquiry he ascertained from the mother that she had permitted intercourse with a white man living with her master, the day succeeding the same act with her husband.

There were two separate and distinct placenta and cords, and the midwife, having no knowledge that such a state of affairs could exist, had caused inversion by pulling at the second cord. The womb was readily reduced by the usual manipulations.

MYXEDEMA IN BERLIN.—A case of myxœdema was exhibited at the Berlin Medical Society by Professor Senator, on February 9th. He remarked that this was only the second case observed in Berlin, the other having been reported by Dr. Reiss at the end of last year. Together with two cases described by Professor Erb, of Heidelberg, this case made the fourth reported in Germany.—*Lancet*, March 5, 1887.

WOUND OF FŒTUS IN UTERO BY STAB WOUND OF THE MOTHER.—The patient was a woman in the eighth month of pregnancy, who was stabbed in the gluteal region. About two and one-half litres of sanguinolent fluid escaped, and on the following day she was delivered of a dead child. Dr. Guelliot found on the left parietal bone of the infant an incised wound traversing the bone. The mother was necessarily exposed to serious risk of peritonitis and hemorrhage, but, curiously enough, she recovered without the slightest untoward symptoms. The wound in the buttock was situated ten centimetres from the great trochanter. He reproduced this wound on the cadaver, and found that, under similar circumstances, the peritoneum is not injured, but that the sciatic nerve and gluteal artery were liable to damage. The patient in question had some anæsthesia, indicative of injury to the sciatic nerve. The liquid which escaped was probably liquor amnii.—*Archives of Gynecology*, February, 1887.

TREATMENT OF HABITUAL CONSTIPATION IN CHILDREN.—DR. DAY, at a recent meeting of the Harveian Society of London (*British Medical Journal*, March 26, 1887) read an interesting paper on this subject. Most cases, he said, are due to: 1, a sluggish state of the muscular coat of the intestine; 2, to a diminution of secretion from the mucous membrane, or the liver; 3, to improper diet. Children are variously affected by constipation; the bilious and plethoric require a daily evacuation, whilst the neurotic, eating similar food, may have no evacuation for days together without in-

convenience. Prolonged constipation is apt to lead to disease of the cæcum, chronic inflammation and thickening of the intestinal walls, dilatation of the tube, and occasionally perforation of the gut. Highly nutritious food, by not furnishing any residuum to be carried into the intestine, is conducive to constipation. As regards treatment, it is important that the child should make a voluntary effort every morning. Emetics are valuable when the colon is torpid and the rectum blocked. Mellin's food is advocated as a valuable preparation in the constipation of young children. Among drugs, strychnine and belladonna are useful in imparting tone to the bowels, relieving spasm, and lessening flatulence. Nitric acid was recommended in some cases of chronic constipation. An occasional mercurial purgative is useful in constipation from deficient secretion of bile, but, if repeated too frequently, it causes lassitude, pallor of the face, softness of muscle, and irritability of temper. Saline aperients are sometimes useful in children of full habit. Massage is a powerful remedy in chronic constipation, and, if conducted by a competent person, the process is pleasant and soothing to the child. Attention to diet is of primary importance.

MENTHOL-LANOLINE OINTMENT.—

R.—Mentholi grs. 15.
Ol. olivarium m 8.
Lanolini ad. ʒ2½.

M. f. unguentum.

Sig.—Lanoline ointment for migraine.—*Therapeutische Monatshefte*, March, 1887.

RUPTURE OF THE BLADDER.—A patient was admitted into St. Bartholomew's Hospital on the morning of March 1st with symptoms of a ruptured bladder, in consequence of a blow on the hypogastrium whilst the bladder was distended. The injury had been received the previous evening, and Mr. Walsham operated soon after admission. A large quantity of urine escaped from the peritoneal cavity when the abdomen was opened, and a rent about an inch and a half long was found in the bladder wall. Sutures were used, passing through the peritoneal and muscular coats only; the abdominal cavity was irrigated with a one per cent. solution of boracic acid, and the abdominal wound closed as after ovariectomy. The patient suffered very little shock, and passed his urine naturally without the aid of a catheter every four hours. There has been no sign of peritonitis, and he may be looked upon as convalescent.—*Lancet*, March 19, 1887.

GASTROTOMY IN ITALY.—The *Gazetta degli Ospitali* of February 23d gives the details of a gastrotomy performed by Professor Loreta, of Bologna, on account of severe pain suffered by a young woman who had swallowed a large quantity of needles with the intention of committing suicide. On searching the stomach carefully with the hand, few needles could be found. The cause of the pain and suffering was explained by further search and extension of the abdominal incision to the right over the liver. The points of several needles were found protruding above the surface of the margin of the left lobe of the liver, and these were deemed to be the

source of the pain. Some were withdrawn, but others were so fragile that they broke off. The wound in the stomach and the abdominal parietes were accurately sutured, and the patient recovered without a bad symptom, entirely freed from her suffering.—*Lancet*, March 19, 1887.

OINTMENTS FROM THE FORMULARY OF THE NEW YORK HOSPITALS.—The following is prescribed by DR. W. F. MITTENDORF in recent burns and injuries of the eye; it should be applied every hour:

R.—Cocaine hydrochloratis . . . gr. 2.
Petrolati gr. 40.—M.

Petrolatum is commonly known as petroleum ointment, paraffin jelly, or vaseline. Also,

R.—Iodoformi gr. 30.
Atropinæ sulphatis gr. 1.
Petrolati 3½.—M.

To be applied to the conjunctiva every evening in chronic phlyctenular ulcers.

The following is the formula for Hebra's (or Wilkinson's) compound sulphur ointment:

R.—Calcii carbonat. præcip. 2 parts.
Sulphuris sublimat. 3 "
Olei cadoni 3 "
Saponis viridis 6 "
Adipis 6 "

Melt the lard at gentle heat. Then add the green soap and incorporate the other ingredients, stirring until the ointment is cold.

THE USE OF MENTHOL.—The following semi-fluid will be found useful when it is desirable to apply menthol to the mucous membranes—a camel's-hair brush is the most convenient agent for its application:

R.—Mentholi grs. 15.
Dissolve in ol. olivarium . . . ℥ 45,
and add
Lanolini 3½.
M. f. unguent.

In burns, the following is an excellent application:

R.—Mentholi grs. 75.
Ol. olivarium 3½.
Aquæ calcariae 3½.
M. f. linimentum.

This preparation may be spread as a plaster, and as such may be most conveniently applied.

EXAMINATION OF THE HIP-JOINT THROUGH THE RECTUM.—Valuable information as to the condition of the acetabulum may be obtained by examination with the finger in the rectum. Three cases are reported by SCHMITZ in the *Centralblatt für Chirurgie*, in which this mode of examination proved useful. The patients were children from three to five years of age, in whom symptoms of coxalgia had existed for three, six, and twenty-one months respectively. In all three the thigh was slightly flexed, abducted, and rotated inward. In one case rectal palpation revealed a well-defined tumor in the acetabular region; in the others, abscesses varying in size from a hen's egg to a nut were detected. Movement of the femur during anæsthesia produced no fric-

tion. Resection was performed in all the cases, and the head of the femur, with its cartilage, was found to be quite healthy, but the acetabulum was extensively diseased. Schmitz recommends the use of this method of examination in all cases of suspected hip-disease.—*British Medical Journal*, March 19, 1886.

"BLACK DROPS" AND CARBOLIC ACID FOR PAINFUL EMESIS.—PECHOLIER has used the following prescription:

R.—Acid. carbol. liquefact. 3 2.
Aceti opii 3 6.

Four drops in sweetened water three times daily, five or ten minutes before meals.—*Therapeutische Monatshefte*, March, 1887.

COCAINE IN ORAL SURGERY.—TELSCHOW is quoted as follows by the *Therapeutische Monatshefte* for March, 1887, in his observations with the use of cocaine:

The quantity used must depend upon the vigor of the patient; it will ordinarily vary from three-fifths to one and one-fifth grains; to the solution of cocaine Telschow adds a solution of carbolic acid 1 to 1000.

The injections should be made as nearly as possible to the nerve branches, as the effect is then more marked.

When possible, the injections should be made at the borders of the mucous membrane about the teeth; injections are also made in the distribution of the lingual, buccal, and labial nerves.

In about two minutes after the injections the mucous membrane may be separated from the teeth by a knife, and a 20 per cent. solution of cocaine may be pencilled between the teeth and the tissue separated.

In about three or five minutes the operation contemplated may be commenced; all pain may not be avoided, but no great suffering will ensue.

The unfavorable effects of cocaine were witnessed among nervous women and the aged only, and followed the use of large quantities; the best restoratives were five or six drops of amyl nitrite, and alcoholics.

THE USE OF CORROSIVE SUBLIMATE IN OBSTETRICS.—SZABÓ, of Budapest, reports in the *Archiv für Gynäkologie*, vol. xxx., First Part, the following conclusions from his observations in the use of this antiseptic in the Budapest Clinic:

1. For disinfecting the hands a sublimate solution, 1 to 1000, is recommended.
2. For disinfecting the genitals a solution of 1 to 2000.
3. For injections, vaginal and intrauterine, solutions of 1 to 4000 are used.
4. The vagina, and especially the uterine cavity, should be injected for the most positive indications only, either at the time of birth or during the puerperal period.
5. When such injections are given, not more than two quarts of sublimate solution should be used.
6. When injections are made to check hemorrhage, in a relaxed condition of the uterus, a solution, 1 to 8000, should be employed.
7. Sublimate should not be used when patients are anæmic, cachectic, or suffering from phthisis, affections of the kidneys, or of the digestive apparatus.

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ASEPTIC OPHTHALMIC SURGERY.

THE advent of antiseptics and its development into asepsis have not been revolutionary in ophthalmic surgery as in the surgery of other regions. As there was here the less need of such a reform in methods of surgical procedure, it has been less violent, less rapid, and, perhaps, less complete. The provisions of nature to guard the eyes—the lids, the tears with their increased flow after any injury of the organ, the outflow of aqueous humor when the globe is penetrated, the draining away of serum when the extensive lymph spaces of the orbit are opened—are all admirably adapted to prevent the infection of wounds, either accidental or operative. Then the small extent of the operative wounds, the accuracy and delicacy with which they must be made, and the need for absolutely keen, smooth edges to the knives and needles used, led to special care of instruments.

The accessibility of the eye to observation, and the importance of its function, fostered the most painstaking and accurate observation, and gave clinical experience a weight that enabled it to dominate practice. It has abundantly proved the value of cleanliness, and the dangers of introducing unnecessary instruments into the eyeball, or of operating on an eye in the presence of purulent disease of the conjunctiva or of the lachrymal passages. If sepsis was avoided, it mattered not what theories were held to give a *rationale* of the practice. So the methods of operative ophthalmic surgery of a generation ago, in many respects, conformed closely to the precepts of the wider aseptic surgery of to-day. A sense of this made the ophthalmic surgeon slow to adopt the antiseptic methods

that seemed to constitute such a marked advance in many departments of surgery; but it must not keep him from carefully studying and profiting by the present practice of asepsis.

In the selecting of antiseptics for application to the eye, two things are to be borne in mind, viz., that the small surface for absorption prevents general poisoning by drugs like iodoform or mercuric chloride; and that the sensitiveness of the conjunctiva contraindicates the use of very irritant solutions. The latter condition has prevented the extension of any general favor to carbolic acid; though Gillet de Grandmont has recently advised, in the *Journal de Médecine* for January 23, 1887, the use of the carbolic spray during operations. He, however, does not direct it upon the eye, but uses it in the room for its effect on the instruments, the hands of the surgeon and the assistants, and, perhaps, though he does not mention it, on the minds of the patient's friends.

The most important use of the so-called antiseptics in ophthalmic surgery is that of solutions to cleanse the conjunctival sac, the lachrymal passages, and the lids and neighboring parts. For these purposes boric acid in saturated solution 1 to 25 has been used. It is entirely non-irritant, but a feeble antiseptic. Mercuric iodide 1 to 25,000 is also non-irritant, and a more reliable antiseptic. More powerful still is mercuric chloride in solution of 1 to 5000 or 1 to 2000. It is, however, slightly irritant, and, especially, in the stronger solution, should be used with care. Besides these solutions, iodoform may be applied in substance to the conjunctiva, always with the proviso that it be in the form of an impalpable powder, with no large, sharp crystals. For injection into the anterior chamber and lens capsule, for the washing out of adherent lens substance, in cataract extraction, after the method of McKeown and Wicherkiewitz; distilled water, and the boric acid and mercuric iodide solutions, have been used with equal freedom from irritation, and equal success.

To render them aseptic, such instruments as forceps, hooks, and specula, may be placed in a 3 per cent. solution of carbolic acid, although thoroughly efficient chemical disinfectants all seem to blunt the delicate cutting edges of knives and needles. The flame is out of the question, because it would spoil the temper of the metal; recourse must be had to boiling water or to mechanical means. If the surface of the metal be perfectly smooth, polished, and free from flaws and specks of rust, washing in pure water, and thorough rubbing with a clean towel, or piece of absorbent cotton, is all that is needed, culture experiments having indicated that polished metallic surfaces are thus rendered entirely aseptic. Of course, aseptic instruments must not touch hands, case-linings, or anything else which

may carry infection. In the after-dressing of wounds, aseptic hands and materials, and the washing away of all discharges with one of the solutions above mentioned, are the essentials.

Special applications of antiseptics are seen in the use of corrosive sublimate, nitrate of silver, and sulphate of copper in purulent and granular conjunctivitis. Another treatment for panophthalmitis recently advised by Chibret in the *Archiv d' Ophthalmol.* for Nov.-Dec. 1886, consists in extracting the lens by a flap operation, and washing out the globe by injecting a solution of mercuric chloride 1 to 2000. This solution is injected at intervals for a couple of days, during which time great improvement occurs, and the healing is rapid and satisfactory.

The destruction of noxious germs is accomplished by the use of the actual cautery in the treatment of sloughing corneal ulcers; and it is not improbable that the treatment of purulent conjunctivitis by hot fomentations, which has grown into favor, is but a form of antiseptics by heat. Freyer states in the *Transactions of the American Ophthalmological Society*, 1886, that, to be effective, the temperature of the water must be 140° Fahrenheit, or upward; and this is so near the thermal death-line of pathogenic bacteria, as determined by Sternberg and others, that it seems very likely that the good results of the treatment are due, in part at least, to the direct effect of heat on the pyrogenetic organism.

Although the old-fashioned surgeon may claim that the doctrines of antiseptics and aseptics only affirm the correctness of methods of practice whose value has already been well demonstrated by clinical experience, no light shed upon the reason of their correctness can be regarded as superfluous. So long as the proper precautions are preserved, whether ignorantly or knowingly, they prove effective. But in ignorance of their true import, they are sure, sometime, and in some essential particular, to be neglected, to the misfortune of the patient. And a careful revision and supervision of all operative procedures about the eye, in the light of the bacterial theory of suppuration, may subtract from the catalogue of bad results those cases, which occasionally occur, of an eye going or sent to destruction after an, often trivial, operation in a healthy patient.

ICE OR HOT WATER IN UTERINE HEMORRHAGE?

In a case of post-partum hemorrhage, which occurred recently at the Philadelphia Hospital, the resident physician, after vainly using vinegar and then introducing a lump of ice into the uterus, stopped the flow by intrauterine injections of hot water. The patient got on well until the third day, when septicaemia was manifested, the disease happily yielding to intrauterine injections of corrosive sublimate, as indeed most cases of this disorder in the

puerperium do when these injections are properly used. But the question naturally arises as to the origin of this isolated and single case of the disease. Considering the very remarkable results obtained by Prudden, stated in a recent number of *THE MEDICAL NEWS*, as to the enormous number of living bacteria found in the ice supplied to many of the citizens of New York, often from twenty to fifty thousand in a cubic centimetre, and with the probability that some of the Philadelphia ice is no better, it does not seem impossible that the disease was conveyed to the patient by the ice which was put into the uterus.

The choice between ice and hot water for the arrest of post-partum hemorrhage ought not to be doubtful, for most assuredly the latter is more certain in its action, and does not produce the depression that follows the application of cold. But if it is possible that septic infection may be conveyed by the introduction of ice into the uterus, we have a still stronger argument against its employment.

REMOVAL OF AN INTRACRANIAL TUMOR.

In the current number of *THE MEDICAL NEWS* BIRDSALL and WEIR record a remarkable case of removal of a huge sarcoma, which originated in the meninges, and by its pressure destroyed the occipital lobe. The case not only reflects great credit upon the diagnostic skill of Seguin, Birdsall, and Spitzka, thereby constituting another triumph of the art of cerebral localization, but it contains several lessons of importance to the practical surgeon, of which the most striking is the proper means of arresting hemorrhage.

In this particular instance the bleeding was so profuse as to give rise to marked general symptoms. For its arrest, Weir, with the consent of his surgical colleagues, plugged the large cavity with strips of iodoform gauze. As the loss of blood continued, the outer dressings were removed in about five hours after the completion of the operation, and more gauze was crowded in, but death ensued four hours later, as stated by Weir, from the erroneous method resorted to for controlling the hemorrhage. Hence, in a similar case of bleeding from vessels too deeply seated for ligature, he would employ clamp forceps.

PUDDING OR PRAISE.

CARLYLE once stated that the great majority of human beings lived either for pudding or for praise. Since physicians compose so large and important a class of the race, they, too, work either for the substantial things of this world, or for commendation, for pudding or for praise. As this is the period of the year when several hundred are added to the great army of doctors, possibly a word or two upon these topics may be useful, as they are timely, to the new recruits.

First of pudding. Medicine belongs to what have been called the bread and butter sciences; it is practised as a means of obtaining a livelihood, and while philanthropic motives ought ever to govern the physician's life, yet few would pursue it solely out of love for his fellow-man. The doctor is a workman, and ought to be worthy of his hire; that is, he ought to receive a just compensation for his services, and at the same time this compensation should not be so great as to do injury to the one paying it. We knew an eminent surgeon in one of our western cities, whose inquiry of patients coming from the country, was, "What is the size of your farm?" and the bill for his services corresponded. It is always better before doing an operation, to have a definite understanding as to the fee, remembering that we should never take advantage of the sufferings of fellow beings to extort from them in their distress an amount which will put them to serious inconvenience; some of them have to borrow the money to pay the bill, and possibly this may be so great that they painfully struggle all the rest of their days under the load of debt.

But it is not by operations that most doctors chiefly earn their living, but by visits and office consultations. It is important that the physician should keep careful and complete accounts of these multiplied services, and collect his bills at least twice a year; "many a mickle makes a muckle," and constant and assiduous attention to collecting the little amounts due for professional services may, after many years, make all the difference between pinching poverty and pecuniary comfort in old age. We have known so many physicians whose lives of labor did not bring them an old age of ease, and who died leaving their families in destitution, that we are urgent in pressing the importance of this attention to the pecuniary returns of business.

The young physician, eager for patients, may be tempted to take some upon the no cure no pay basis, but he will generally come to grief by pursuing this plan; the sort of patients that are thus caught are generally fickle in their attachments, and have no proper conception of the medical character and office. There are some who are incurable, no matter what therapeutic means are used; yet efforts to cure deserve a reward. One of our own guild, Sir Thomas Browne, has said: "There are not only diseases incurable in physick, but cases indissoluble in law, vices incorrigible in divinity." He further states in regard to charging the uncured patient: "Where I do him no good, methinks it is scarce honest gain, though I confess 'tis but the worthy salary of our well-intended endeavors." The last clause furnishes the ethical rule which should govern the physician in collecting his bill, even though his services have been in vain.

It is not unusual for physicians in villages and smaller towns to make their daily purchases from their clients and thus keep running accounts which are only settled at long intervals. Now this way often leads to misunderstandings, to disputes, and to final alienation between those who have been friends. It is better for the physician to pay cash for all that he buys.

However crowded the profession is, the young doctor may be assured that, with a fair amount of attainments, with common sense and wise conduct, he is sure to meet with success ultimately. He may have to wait, especially in cities and towns, for some years before income and outlay shall be equal, still longer before the former exceeds the latter; but if he spends those years in working, in attaining larger knowledge and greater fitness for professional duty, instead of indulging in frivolous amusements or gloomy forebodings, that success will be more certain and greater.

Very exaggerated notions are sometimes held, even by physicians, as to the income derived from medical practice, and we sometimes see not only in lay, but also in medical, journals, extravagant statements as to the annual amounts received by practitioners. *Dat Galenus opes* is only exceptionally true; for one hundred medical men whose income is counted by thousands, there are thousands whose income is within the hundreds. The fact is that for the majority of physicians a fair support is all their professional work yields them; they and their families nearly or quite consume all the pudding that society gives them.

Having devoted so much space to one aspect of the subject, we leave the other to a future occasion.

TREATMENT OF THE MORPHIA HABIT.

IN *L'Encephale*, No. 2, 1887, JENNINGS gives his experience with a new plan of treatment of morphiomania. The amount of the narcotic is gradually reduced, and in the period of inquietude and distress various forms of dynamic stimulation are employed, such as faradization, massage, dry friction, mechanical vibration by Granville's percuteur; sounds, as music; and heat, by warm bath. By these means the insupportable craving is allayed, and the dose can be progressively diminished. The only medicines employed are bicarbonate of sodium, preparations of valerian and nitro-glycerine, which produce a glow and pleasant sensation, not unlike that of morphia. The essential features of this method have been employed with success by Weir Mitchell, who has found seclusion, careful nursing, massage, and electricity most valuable adjuncts in the treatment of this distressing and obstinate condition.

A MONUMENT TO RUSH.

THE American Medical Association have undertaken a most commendable work in endeavoring to raise a fund for the erection of a monument to Rush, at Washington. It is by no means creditable to this city, for which he did so much, the reputation of which as a medical centre he may be said to have laid, and in the service of which he died, that no public memorial attests the gratitude of his fellow-citizens. The appeal is now made to the profession of the entire country to subscribe a sum of \$40,000, the amount which it is estimated that a suitable statue will cost. The subscription rate has been fixed at one dollar, though voluntary donations of other sums will be received. Dr. John H. Musser, of Philadelphia, is the member of the committee for Pennsylvania, and entitled to receive subscriptions.

THE SATURDAY AND SUNDAY HOSPITAL FUND of New York City is a vital and growing charity. The amount of its collections this year, thus far reported, about \$53,000, is 15 per cent. above the sum contributed in the year previous, when the total was \$46,023.43. This betokens a growing popularity from year to year, and is in striking contrast with the situation of the like fund in London, in which there has been a falling off this year of \$2500 from the sum of a year ago, when about \$28,000 was the amount received.

MESSRS. PARKE, DAVIS & Co., have just issued an excellent lithographic portrait of Dr. Robert Koch, the eminent bacteriologist, and they kindly offer to mail a copy to any physician applying to them for it.

WE are informed that Dr. Wm. T. Lusk, of New York, successfully performed Cæsarean section at Bellevue Hospital, March 23d.

REVIEWS.

MANUAL OF OPERATIVE SURGERY. By JOSEPH D. BRYANT, M.D., Professor of Anatomy and Clinical Surgery and Associate Professor of Orthopedic Surgery in Bellevue Hospital Medical College, Visiting Surgeon to Bellevue Hospital, etc. 8vo. pp. 530; with about eight hundred illustrations. New York: D. Appleton & Co., 1887.

DR. BRYANT has succeeded in producing a very creditable work upon operative surgery, and one which can be consulted with pleasure and profit. It is less comprehensive than Smith's work, there being no chapters devoted to the diseases peculiar to women, those of the eye or ear, or fractures and dislocations, but the various operative procedures of general surgery are carefully described, and the indications for and against operations discussed in a judicious yet progressive manner. Amongst the methods of anæsthetization

mentioned we note that by "intestinal etherization," which was prominently again brought to notice a few years ago; but as it is dangerous, a number of fatal cases having occurred, and possesses few or no advantages over the usual method of administering ether, the mention of the method is of more interest historically than practically.

The usual typical operations are carefully described, and the surgical anatomy involved is accurately explained and illustrated. Various innovations and new methods which have been introduced during the past few years have appropriate notice and discussion in the text, such as cerebral localization, operations upon the nerves, nerve suturing and nerve transplantation, suturing of tendons, transplantation of bone, etc. We note, in passing, that the author regards the old circular amputation as the method best adapted to the majority of cases.

It is needless to specify particularly any special portion of the work; all parts are excellent, fully up to date, judicious in regard to methods which are still on trial, with good anatomical cuts and explanations, and a lucid style.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, April 7, 1887.

THE PRESIDENT, A. JACOBI, M.D., IN THE CHAIR.

THE PROPER SELECTION OF ETHER OR CHLOROFORM AS AN ANÆSTHETIC.

THE PRESIDENT stated that Dr. Arpad G. Gerster was to have read a paper on this topic, but as he was temporarily detained, he would make a few remarks introductory of the subject. He said that he understood that the reason why Dr. Gerster had written his paper was because in several cases of death under chloroform occurring in this city, the attending surgeons only with difficulty escaped legal penalties, the ground being taken, by the authorities investigating the cause of death, that it is unjustifiable to administer chloroform for anæsthetic purposes. On the other hand, several deaths of patients under ether had been reported in our own hospitals. Dr. Gerster, therefore, thought it desirable that the Academy should give expression to its opinion whether it is always, and under all circumstances, advisable to give chloroform, or whether in certain conditions it is not preferable to ether, or, again, it is a matter of indifference which agent is employed.

DR. JACOBI then read a letter from Dr. Hermann Knapp, who was unable to be present, in which he briefly related his personal experience with the two anæsthetics. From 1860 to 1874 he used chloroform in some three thousand cases. While he had had no fatal results, in many instances the effects were very unpleasant, and he had met with a considerable number of critical cases. During this period about once a month he was obliged to resort to artificial respiration and other measures for the resuscitation of his patients. Since the year 1874 he had used ether exclusively, and

since then he had found no ground for complaint, and no contraindication for the administration of this agent.

It is his practice to employ what is known as the "choking plan" in giving it; though at the beginning of the anæsthetization the patient is allowed to have enough air to prevent the sensation of strangulation often complained of by those taking ether.

He had found that many operations performed by the ophthalmic surgeon could be completed during preliminary anæsthesia—that is, before profound narcosis is induced. In several hundred of his cases the average duration of the maintenance of the anæsthesia was one minute and thirty-seven seconds. He had met with no fatal cases, and only a very few in which there was any trouble whatever on account of the anæsthetic. The secondary effects, moreover, he had not found any more unpleasant than those of chloroform. On the whole, therefore, he regarded ether as an invaluable anæsthetic, and he looked upon it with especial favor, from the fact that now that he habitually employed it his mind was quite free from that anxiety as to the effect of the anæsthetic which, in the case of chloroform, he could never overcome.

DR. GERSTER said that in approaching this subject it is necessary to cast away all prejudice and consider it in a spirit of candid inquiry. In the first place it is to be borne in mind that both ether and chloroform are dangerous anæsthetics. Researches with the aid of the sphygmograph, demonstrating the effect upon the pulse, have shown, however, that chloroform is infinitely the more powerful agent of the two. Still, this fact does not afford ground for the universal condemnation of chloroform, though it renders greater caution necessary during any operation in which it is used. As soon as the patient recovers consciousness, however, all danger from the anæsthetic is past. This is not the case with ether, because the latter is liable to give rise to nephritis and catarrhal bronchitis. To sum the matter up, then, while chloroform is the more powerful agent, and consequently attended with more danger at the time of the operation, its use is not followed by the secondary affections of the lungs and kidneys which are apt to result from that of ether.

The statement frequently made by partisan zealots, that ether is always and under all circumstances safe, is not true. In hospital practice it is found that in a considerable number of patients, particularly those addicted to the use of alcohol, it is exceedingly difficult to produce profound anæsthesia with this agent, and in such cases, from the effect of the excessive and irritating mucous secretions excited, catarrhal or septic pneumonia is very apt to ensue. Admitting that, on the whole, ether is safer than chloroform, Dr. Gerster proceeded to speak of the manner of administration, and recommended as superior to any other that by means of Ormsby's inhaler. He then went on to say that ether is contraindicated in all affections impairing the renal functions, a circumstance, the credit for first pointing out which belonged to Dr. Emmet. In this connection he related a case in which herniotomy was performed. The operation lasted twenty-five minutes, and the patient recovered perfectly from anæsthesia. Albumen and hyaline casts were noticed in his urine, however, and in a short time he died from uræmia. Other similar cases had been noted by Drs.

Emmet, Wesley M. Carpenter, Van Santvoord, Hunt, and Morris. An examination of the urine, he thought, should be made in every case before administering an anæsthetic, except where the urgency of the circumstances precluded this, and if Bright's disease is found to be present chloroform will be the safer agent to employ.

Ether is also contraindicated when in the aged or in young children, or generally in the feeble, there are catarrhal conditions of the air passages. He related the following cases in illustration:

Case I.—Mary B., aged forty-three. On the 20th of August last she was admitted to Mt. Sinai Hospital suffering from cancerous stricture of the rectum and chronic bronchitis. On August 23 lumbar colectomy was performed under ether. On the 23d she had a severe chill, followed by a temperature of 105°, and on the 24th pneumonia of the entire right lung was found to be present, and death ensued.

Case II.—Moses H., admitted to Mt. Sinai Hospital in January, 1887, with tubercular disease of the testes. On the 23d of the month castration was performed under ether. On the 24th the temperature went up to 106°, pneumonia of the right lung developed, and the patient died. In this case, as in the preceding, the wound made at the operation was found at the autopsy to be in a healthy condition.

Case III.—Stephen W., aged sixty-one years, admitted to Mt. Sinai Hospital in November, 1886, suffering from cancer of the rectum. Inguinal colotomy was performed under ether, and pneumonia of the left lung afterward developed.

In the year 1886 three cases of pneumonia occurred in the Mt. Sinai Hospital after the administration of ether; in two of which the patients died, while in the third recovery took place. There were also five cases of severe bronchitis arising under similar circumstances, reported during the year. Dr. Gerster said he had four more cases in his notes, but as in these operations were performed either upon the trachea, larynx, or lower jaw, it was possible that the entrance of blood into the air-passages might perhaps have caused the pulmonary disease; and he would not, therefore, insist upon them. As narcosis by ether is dangerous in young children suffering from affections of the air-passages, chloroform is always to be preferred under these circumstances, although in healthy young children ether is borne well.

The third class of patients in which chloroform is to be preferred is those who cannot be satisfactorily brought under the influence of ether. In the incomplete anæsthesia thus caused there is an amount of muscular rigidity remaining which constitutes an insuperable difficulty in quite a large class of cases. Not only loss of sensation, but total relaxation of all the voluntary muscles is indispensable in many operations. In spite of proper preliminary precautions, and the greatest amount of care in the administration of the anæsthetic, in 11 cases out of 125 at the Mt. Sinai Hospital, it was found impossible to produce with ether the complete anæsthesia required. In all these instances, however, a change to chloroform was followed by the happiest results. Five cases were related in illustration. To recapitulate, then, he said ether should not be used as an anæsthetic in any case—

(1) Where acute or chronic nephritis is present or is suspected to exist.

(2) Where there is any chronic pulmonary affection, especially in the old or feeble.

(3) Where ether will not produce the complete anæsthesia and relaxation indispensable for the successful performance of the operation in question. In such cases, if local anæsthesia cannot be secured by cocaine or the ether spray, chloroform should be resorted to.

Dr. Gerster then went on to say that while, in general, the administration of chloroform undoubtedly required greater caution than that of ether, there was only one contraindication against chloroform, viz., the presence of a fatty or weak heart. In the hands of a careless giver of anæsthetics, chloroform is, no doubt, more dangerous than ether. In those addicted to the habitual use of alcohol, normal anæsthesia with ether is generally impossible, as such patients usually drift from a state of violent excitement into alarming narcosis. Sometimes the same result is noticed, however, in the perfectly temperate, and a case in point was given. Bright's disease offers no contraindication to chloroform, and he said that in a number of cases in his own experience, two of which he related, he had used it with no bad results whatever in those suffering from pure kidney affections. In eight years' hospital experience he had met with only two cases in which pneumonia followed the administration of chloroform, and in both these the probable cause of the pulmonary trouble was the entrance of blood into the bronchi.

The existence of valvular disease of the heart, again, is not a contraindication to chloroform if there is satisfactory compensation by muscular hypertrophy, as indicated by the good quality and regularity of the pulse. In such cases, especially when there is a kidney complication, ether should not be used. On the other hand, if the heart is feeble from any cause, chloroform should never be used. In such cases ether is also dangerous, but to a less degree. In anæmia ether is, as a rule, safer.

Dr. Gerster next spoke of the special danger of chloroform in cases of marked nervous depression, and said it should never be used when the patient is in a state of fright. It is a fact that most of the deaths from its use are in cases of slight operations, and he thought this was explained by the dread of the operation or the anæsthetic. In severe operations the patient generally nerves himself for the ordeal, and hence there is less danger from this source. There are many cases of pallor and weak pulse, however, in which the condition is markedly improved by the anæsthetic, whether chloroform or ether.

On February 10, 1886, Thomas R., aged thirty-two years, consulted him at his office for a tumor of the maxilla. When an exploratory excision was proposed he became so much alarmed that he asked for chloroform, which was not given at this time. Five days later he was admitted to the hospital as a private patient, and on the 17th Dr. Gerster proceeded to operate on the tumor, which proved to be a glandular abscess. He subsequently learned that the patient expressed the conviction that he would never leave the operating-room alive. When two drachms of chloroform had been administered by means of Esmarch's mask, opisthotonos suddenly occurred, the pupils became dilated,

and the abdominal muscles were found to be rigid. The pulse ceased and within a minute the man was dead. The most active efforts at resuscitation were carried on for forty-five minutes, but without avail. The heart was previously carefully examined; the pulse was found to be good up to the time of the operation, and the kidneys were normal. The experience gained in this case, Dr. Gerster said, led him to administer stimulants and a small dose of morphia prior to operating in all cases where the patient was not in a perfectly good condition, and he would now never give chloroform to any one who was the subject of deadly fear. In every instance in which it is feasible a careful physical examination should be made, and the probable prognosis duly announced to the patient or his friends before proceeding to employ this anæsthetic.

DR. R. F. WEIR said that there seemed to be a growing feeling in the minds of the profession that ether is not as safe an anæsthetic as we have for many years been supposing. The points presented by Dr. Gerster were certainly worthy of consideration; but he thought he had stated the case too strongly against ether. While in some instances kidney trouble might be aggravated by the administration of ether, he had seen too many cases of this kind in which it had been given with safety, since Emmet and Hunt, of Philadelphia, had so prominently called attention to the matter, to make him willing to acknowledge that the presence of nephritis was always a contraindication to the use of ether. He did think, however, that in such cases it should be given with special caution. Dr. Gerster was perfectly correct in his statement that there are a certain proportion of cases in which it is practically impossible to produce perfect anæsthesia with ether.

As to the production of pneumonia, while it is possible that it may sometimes be due to the local effect of the cold ether vapor, he is inclined to think that in many instances it is directly attributable to certain measures which have come into vogue since the introduction of antiseptics. The spray had formerly been instrumental in giving patients cold, and since this had been to a great extent abandoned, the practice of laying cloths wet with antiseptic solutions upon the surface of the body was, probably, sometimes the cause of pneumonia. This incautious exposure of the patient is to be avoided, and he thought general surgeons should take a lesson in this respect from gynecologists, who, it is noticeable, are always very careful to protect the patient from all such influences. Some time since, he had called the attention of the house staff of the New York Hospital to the matter, directing warm and dry towels to be placed next the body, except just at the seat of operation, and since this precaution has been taken, he has met with less trouble of the kind in question.

Personally, he did not think the bad consequences arising from the use of ether are as frequent as had been represented in the paper; but, after all, Dr. Gerster had admitted very frankly that chloroform is much more dangerous than ether at the time of administration. The question then arises—Is the danger which follows the use of ether greater or less than that which attends that of chloroform during an operation? Dr. Weir answered this by saying that, as for himself, he would prefer to take ether rather than chloroform, if an anæsthetic was required, even if he were the subject of kidney trouble.

The deaths from chloroform from 1873 to 1879, collected by a single journal, the *London Lancet*, amounted to 92; while those from ether, from 1873 to 1880, as collected by Dr. Roberts, of Philadelphia, amounted to only 18. This showing, he thought, corroborated the position which he desired to take before the Academy in the present discussion.

He believed it would be of interest to present the statistics of such a venerable and well-known institution as the New York Hospital, and he had, therefore, taken the trouble to look up the records. In this hospital ether and chloroform had been used since 1847. Shortly after this date, however, a number of mishaps occurred in connection with chloroform, and since 1850 ether alone has been employed. From 1847 to 1870, when the old buildings on Broadway were given up, some 7700 operations were performed under ether, and in only 3 of these did death result from the anæsthetic. One of the fatal cases has been published by the late Dr. Allen, but the other two had never been placed on public record. Dr. Allen's case was one of operation upon the lower jaw, and the other two were both of hernia. One of them occurred while Dr. Weir was house-surgeon (1859-60), and the patient had a double scrotal hernia. No cause for death could be found at the autopsy, and it seemed probable that this was attributable to pressure upon the diaphragm, or, possibly, the heart itself, from the forcing of such a large mass of intestines into the abdominal cavity. The other case referred to, occurred in the practice of Dr. Markoe, and was one of strangulated hernia in a fat, old man, who was in a very low condition at the time.

From 1876, when the new hospital buildings were opened, to 1886, 2287 operations were performed under ether, with one death from the anæsthetic. The case was believed to be one of rupture of the bladder, and when the autopsy was made, a portion of undigested food was found to have lodged in the larynx. In the House of Relief, from 1876 to 1886, 802 operations were performed under ether, with one death from the anæsthetic. At the autopsy in this case there were found atheroma of the aorta and a tuberculous condition of the lungs. It would thus be seen that at the New York Hospital there had been only 5 cases of death from ether in nearly 11,000 operations.

Though he appreciated the fact, as he had already intimated, that there were a great many cases in which the patients "take ether badly," as it is generally expressed, he could not remember a single case in which the operation had to be postponed on this account. By summoning aid to assist in holding the patient, he had always been able to get along without resorting to chloroform. Until an anæsthetic free from all objections was discovered, he thought, therefore, we could go on with the use of sulphuric ether with a fair amount of satisfaction.

DR. LEWIS A. SAYRE stated that he was well aware that the views which he entertained on this subject were entirely different from those held by the great majority of the profession in this country; but, in spite of opposition, he had for many years continued to hold them with ever-increasing confidence. He preferred chloroform because it is agreeable to take, speedy in action, excites no spasmodic rigidity, and is not followed by the sad effects which are sometimes noticed in the case of ether. It is the usual practice to allow the

patient to have plenty of fresh air with the chloroform, thus permitting its antidote to act against the anæsthetic. In consequence, a much larger quantity of chloroform is taken into the system than is required if the proper manner of administering it were employed. The method of pouring an unmeasured quantity of an anæsthetic into a cone or inhaler, and then every few minutes adding one or two ounces more, he thought entirely wrong. We do not, he said, use arsenic, strychnia, morphia, or other potent agents, in this way. Chloroform and ether are both powerful drugs, and he thought, therefore, that they should be used with the same caution as any other potent agent.

Dr. Sayre then exhibited the inhaler, a modification of Lente's which he had used exclusively for many years. By means of a rubber attachment devised by his son, the late Dr. Charles H. Sayre, it can be made to fit accurately to any face, and it is thus possible to exclude all air from the patient except that permeated with the anæsthetic. Ten, twenty, or thirty drops of chloroform, poured in upon the sponge with which the cup is provided will almost invariably produce anæsthesia, and if from any cause the heart should show signs of weakness or cease to act, a few expirations caused by artificial respiration will be sufficient to get rid of the entire amount of chloroform, and thus save the patient. As he had stated, he had practised this method for many years, and in proof of this he read an extract from the Proceedings of the International Medical Congress in 1876 (page 574), giving a report of his remarks on this subject in connection with a case of exsection of the hip, which he performed at the Pennsylvania Hospital in the presence of a number of distinguished foreign and American surgeons. When chloroform is freely mixed with air, anæsthesia is not produced for a long time, and great injury is liable to result from the violent muscular exertion made by the patient, especially when there is disease of the joints present. In addition, if in any case in which chloroform is given in this way trouble should arise from the anæsthetic, a fatal result will probably ensue on account of the larger quantity of the drug which it had been necessary to administer before anæsthesia was produced.

DR. W. GILL WYLIE said that until very recently he had never had a death from anæsthetics in his practice occurring during or near an operation; but within the last two months he had lost two patients, both of whose deaths he attributed to ether. In general, he approved of the opinions expressed by Dr. Gerster in the paper; although he thought that he was somewhat too strongly in favor of chloroform. On the whole, he would therefore say, he preferred ether, as a rule; but there are many cases in which it is advisable to use chloroform. There could be no doubt that ether was often used too carelessly, in New York, as well as in other places, and this is probably due to the prevalent impression that there is little danger to be apprehended from this agent. Some years ago, when a new interne in Bellevue Hospital was administering ether to a patient, he saw the latter suddenly cease to breathe. The man was apparently dead, and it was only with great difficulty that he was resuscitated. When spoken to in reference to the accident, the interne remarked, that he "didn't know that a person could be killed with ether."

Like most other members of the profession in New York, he had used ether almost exclusively in surgical cases, though he had always employed chloroform in his obstetrical practice; and until two months ago had never met with any trouble from ether. At that time he operated on a patient with a large abdominal tumor, using ether as an anæsthetic. The urine had been previously examined, and found to contain no albumen. Not long after the operation the pulse went up to 140°, afterward it never fell much below this; the patient dying of Bright's disease. At the autopsy it was found that nothing whatever was wrong with the abdominal wound. It was a case of chronic interstitial nephritis, in which acute nephritis was suddenly developed after the operation. The liver and heart were also found to be somewhat diseased. In this instance he thought that the administration of chloroform would not have been followed by the disastrous results which were met with after the use of ether.

There was another point which he thought was of some value. He had found that patients who have taken ether more than once are apt to acquire a certain tolerance of the drug, so that it is often very difficult to get them under its influence. He had an opportunity of noticing this a number of times at the Woman's Hospital, when patients with affections like vesicovaginal fistula had to undergo several successive operations.

The other fatal case to which he had alluded was one in which he was called upon very suddenly to operate in a case of strangulated umbilical hernia. The patient, a female, appeared to be in good condition. It was true that she had been vomiting for quite a long time, but the vomit was not stercoraceous in character. She was very stout, and as she reminded him quite strongly of the other patient who died, he at first refused to give ether, and advised chloroform. As the attending physician objected to this, however, he finally consented to use ether, and accordingly this anæsthetic was very carefully administered. Presently, however, the patient became cyanotic, and nearly died on the table. She was temporarily revived, but died about an hour afterward, apparently from suffocation. In another case of this kind he said he would employ cocaine as the anæsthetic, as he had come to the conclusion that in very fat women ether is dangerous. The lung capacity is so small that any extra strain upon the lungs will be apt to prove fatal. In such cases the presence of a very little fluid in the trachea may be attended with grave consequences. In conclusion, he said that he had to confess that three or four years ago he was more or less prejudiced in favor of ether in almost all cases. He had now, however, modified his views somewhat. In general, he preferred ether, but if there were any trouble about the lungs or kidneys he would use chloroform. As a rule, he would use ether in surgery, and chloroform in obstetrics.

DR. WEIR remarked that it had been shown that operations for hernia, and upon the peritoneum in general, had of themselves a direct effect upon the kidneys, independent of the anæsthetic used for the operation.

DR. JOHN H. WYETH said that he had formulated his views as to the cases in which the use of chloroform is justified as follows:

1. In children under six years of age, where it is less

apt to cause an accumulation of mucus in the trachea and bronchi than ether. Its more rapid and less irritating action renders it preferable in this class of cases.

2. In women in childbirth, where the recumbent position is imperative.

3. In an emergency where ether cannot be obtained.

4. In a patient who has previously been in ether narcosis, in whom dangerous symptoms were caused by the ether.

5. In an emergency where it becomes necessary to perform an operation within two or three hours after the ingestion of solid food.

6. In some exceptional cases of laryngeal or tracheal stenosis.

In regard to the existence of nephritis, he would not consider this a positive contraindication. When this is present, however, he would always proceed with unusual caution, and if any trouble should arise he would change to chloroform. He entirely agreed, in the main, with what Drs. Knapp and Weir had said. In his own practice, he said, he had used ether exclusively, except in the classes of cases mentioned, and although his experience had been quite extensive, he had not met with a single case of trouble from it. He had never seen such cases as those referred to by Dr. Gerster. Some of the operations mentioned by him in which ether was followed by such disastrous results were very long and tedious, lasting from three to six hours, and in individuals suffering from cancer; so that the fatal termination was not a matter of surprise. In his work on surgery, Professor Agnew has collected statistics of 195 deaths from chloroform and only 6 from ether, from 1859 to 1872: a proportion of 65 to 1. Moreover, in three of the deaths attributed to ether, a mixture of ether and chloroform was employed. As to the good results which Dr. Sayre had met with from chloroform, he believed that his experience with it had been to a large extent confined to young children and parturient women.

DR. ROBERT ABBE said that he had seen but one death from ether. It was a case of tetanus in which the late Dr. Little was performing amputation of the leg, and the patient died, apparently from spasm of the heart, before the operation was completed. It seemed to him that ether is preferable to chloroform from the fact that the two principal dangers which have been urged as objections against ether, viz., the possible occurrence of acute pneumonia and acute nephritis, are to a large extent under the control of the physician, while the dangers incident to chloroform are entirely beyond control. When asphyxia occurs during ether narcosis, the use of artificial respiration and other appropriate measures is usually successful in restoring the patient; and if acute nephritis occurs after the employment of this anæsthetic, it is, in his opinion, amenable to treatment by means of such agents as sinapisms, digitalis, acetate of potassium, and possibly opium. He had never seen a case of this kind in which death resulted. With regard to acute bronchitis and pneumonia, he believed that many of the cases following operations are due, not to the ether which has been employed, but to the exposure of the patient in being carried from the operating-room and in draughty wards. If such troubles are caused by ether, he believed that we should meet with laryngitis much more frequently than is actually

the case. During the three years in which he had been in St. Luke's Hospital, seeing medical and surgical cases alike, he had found that acute pneumonia arising in the hospital was more frequent in the medical than in the surgical wards. These considerations, he said, gave him great confidence in the use of ether, although he quite agreed with some of the other speakers that when chronic nephritis is present it should be administered with great caution.

DR. PAUL F. MUNDÉ said that in his earlier professional career, spent abroad, he had been accustomed to use chloroform, and that since he had been practising in New York he had used ether almost entirely in surgical cases. He had seen no deaths or subsequent bad effects from the latter, either in his own practice or that of others. On three occasions, however, twice in children and once in an adult, he had met with cases in which death would have resulted from the primary effects of the ether if artificial respiration and other active measures had not been resorted to. While he had been trained to use chloroform exclusively, he would confess that he felt ether to be safer if it was properly administered. The giving of the anæsthetic was, in his opinion, often a more important point than the operation itself. He, therefore, thought it was entirely wrong to entrust so serious a matter to young hospital internes of little or no experience, since to administer an anæsthetic properly required as much experience as to assist intelligently in the actual performance of an operation.

The method for giving ether which he prefers is by means of Clover's inhaler, in which the amount of air admitted can be carefully regulated. He had seen some cases which could not be well anæsthetized with ether, and therefore when he noticed that the mucous membrane was particularly sensitive, he generally substituted chloroform for it for a time, and then afterward went on with the ether again. He almost always gave bromide, and sometimes a hypodermatic injection of morphia, preparatory to administering the anæsthetic. He was inclined to think, however, that morphia might possibly sometimes increase the danger. For short operations, and also in the case of children, as well as in obstetrical practice, he preferred chloroform to ether.

DR. R. W. AMIDON said that while, as Dr. Gerster had stated, the only real contraindication against chloroform was a weak heart, it was at the same time true that deaths occur more unexpectedly—often, indeed, entirely without any warning whatever—than when ether is used. As Dr. Reeve said in a note in Holmes's *System of Surgery*, "There is a danger attending the use of chloroform which no foresight can discern, no precaution avoid, and no skill avert."

As to the collection of mucus in the air-passages which Dr. Gerster had referred to as liable to cause such unpleasant and dangerous results, this could readily be avoided by the preliminary hypodermatic injection of atropia, as he had pointed out in a paper which he read by invitation two years ago before the New York Surgical Society. When, therefore, any respiratory impediment is anticipated from the effects of the ether, from one-fiftieth to one-thirtieth of a grain of atropia should be administered. By this agent the bronchial and tracheal secretions are diminished, and

it also tends to increase the activity of the respiratory centres, and strengthen the heart. Dr. Thallon, of Brooklyn, and Dr. Weir had employed atropia to a considerable extent in this connection, and quite recently a case had been reported in *THE MEDICAL NEWS* of January 22, 1887, in which impending death was averted by the administration of digitalis and belladonna.

DR. THALLON thought that Dr. Gerster was too strongly in favor of chloroform. He agreed with Drs. Weir and Wyeth that the presence of nephritis should not be considered a positive contraindication against the use of ether, although it should make us cautious in giving it. He related a case which had nearly died from the effects of ether in the hands of Dr. Emmet, and afterward came under his own care. After an examination of the urine and the heart he determined to give ether for an operation that had to be performed, and the patient took it without experiencing any trouble, either at the time or subsequently. Still later, she took chloroform, and this likewise was unattended with any difficulty. He thought, as Dr. Sayre had suggested, that the administration of anæsthetics is largely a question of dosage.

The apparatus which he had adopted he regarded as far superior to Clover's or almost any other, and it was simply the inhaler ordinarily used by dentists for nitrous oxide gas. As in the case of the one exhibited by Dr. Sayre, at each inspiration the anæsthetic was inhaled, while the expiration got rid of the foul air. By means of this apparatus he had been able to keep a patient anæsthetized for hours, and yet had not used more than a quarter of a pound of ether altogether. With it he had never had any kicking or struggling on the part of the patient, or failed to secure complete anæsthesia. There is much ignorance in the profession as to the proper administration of anæsthetics, and he thought that the ordinary way of giving ether is little less than brutal. The point suggested by Dr. Amidon he thought one of much value. He had first seen the idea proposed in the *Lancet*, in 1880, if he remembered rightly. It is well known that atropia is one of the best stimulants to the respiratory centres, and it is, therefore, a valuable prophylactic in this connection.

DR. GERSTER, in closing the discussion, said that he regretted that he had been charged with partiality, when he had endeavored to present an entirely unbiassed opinion, and that his position had been misunderstood. He had not defended chloroform; but he did mean to say that it is unscientific to claim that either ether or chloroform is, so to speak, our "only salvation." The proper choice of the anæsthetic in each case should be left to the intelligence and experience of the surgeon. Whatever might be the case with others, he himself had certainly met with a certain proportion of instances in which he could not properly anæsthetize the patient with ether. He had not hesitated to say, however, that he considered ether safer than chloroform, and that it should be preferred to the latter as a rule. Still, he did not think that the statistics which had been quoted were at all reliable, from the fact that while in fatal cases from chloroform the patients died while upon the operating table and were thus sure to attract public attention, in many of these when ether was the cause of death the fatal issue did not take place for some time

after the anæsthetic was given. He himself knew of a number of cases of death from ether which had never been published.

CORRESPONDENCE.

THE DANGERS OF COCAINE.

To the Editor of THE MEDICAL NEWS,

SIR: Your timely editorial, to-day, on "Untoward Effects of Cocaine," in which you remark: "The literature of the subject is so scattered that little attention has been given to it," prompts me to say that I have recently devoted no little time to a study of this topic; the result of which was lately presented to the Medical Society of the County of Kings, in a paper on "Cocaine Dosage and Cocaine Addiction," which is, it has been asserted, "the most extensive ever presented on one phase of a subject that is now attracting attention at home and abroad. It referred to forty authorities—English, French, German, Austrian, Russian, and American—and cited more than fifty cases, to which others have been added, in support of the assertion that there is a danger, near and remote, in the use of this drug, on some patients, that does not warrant the reckless disregard of care which one or two opinions lately presented imply."

The cases, noted more or less in detail, showed that cocaine caused toxic symptoms, so marked in four as to produce death. The amount of the drug used varied from a small fraction of a grain to twenty-four grains, and was applied to the eye, ear, nose, throat, larynx, teeth, gums, stomach, bowel, bladder, uterus, urethra, and under the skin.

The symptoms noted were nausea, vomiting, headache, lividity, deafness, blindness, loss of taste and smell, profuse sweats, cold perspiration, gastric cramps; frequent, feeble, irregular, intermittent, uncountable pulse; shallow, gasping, irregular, difficult, convulsive, suspended breathing—artificial respiration required in some cases; speech, gait, and swallowing greatly impaired; rigid muscles, palpitation, sense of suffocation and great constriction about the chest; loss of motion and sensation in arms and legs; intense restlessness. Extreme prostration, vertigo, faintness, feeling of impending death; unconsciousness, convulsions, paralyses, hallucinations, mania, delusions, delirium—death.

Surely, it seems to me, such a record proves the truth of your closing words, "it certainly seems of the greatest importance that the profession in general be reminded that cocaine is not to be used recklessly and without proper care."

I shall be pleased to furnish a reprint of my paper to any who may desire it.

Yours, very cordially,

J. B. MATTISON.

BROOKLYN, 314 STATE STREET, April 9, 1887.

NEWS ITEMS.

PARIS.

(From our Special Correspondent.)

METHYLAL.—For some time past therapeutists have sought a new hypnotic among acetals. Methylal, which

belongs to these, was first classed by M. Malaguti, in 1839. Methylal is highly volatile. It boils at 42° C. (107.6° F.), and possesses a density of about 0.85. It is soluble in water, alcohol, and oil. M. Personali's experiments proved that methylal rapidly produced sleep in frogs after a dose of 50 per cent. of their own weight; in rabbits, after a dose of 25 per cent. of their weight; in birds, after a dose of 20 per cent.; and in dogs, after a dose of 10 to 16 per cent. A dose of a gramme and a half caused mortality in a pigeon.

Methylal is rapidly eliminated. It modifies the action of the heart, and increases the number of heartbeats during hypnosis. It lowers arterial pressure and increases the cardiac pulsations. At the same time the temperature is lowered. Methylal lessens the activity of exchange in the tissues while it modifies the circulation and respiration. If methylal be administered to a warm-blooded animal at the onset of accidents caused by strychnine, the tetanic convulsions are checked, and the poison being eliminated the animal may recover. In the case of cold-blooded animals, where the process of elimination occupies a considerable time, the toxic phenomena are suspended while the action of the methylal lasts, and reappear when this action ceases.

Methylal may be administered without difficulty, either by hypodermatic method or introduced into the stomach. M. Nicot proposed to administer it externally, prepared with oil of sweet almonds as a liniment, 85 grammes of the excipient to 15 grammes of methylal; or with alcohol at 80 degrees, in the proportion of 10 grammes of methylal to 110 grammes of alcohol and 5 grammes of lavender essence. A pomade might be made with methylal, containing 33 grammes of fatty substances and 5 grammes of the medicament, and an odontalgic mixture with 8 grammes of alsan and 2 grammes of methylal. A potion might be composed of 1 gramme of methylal mixed with 150 grammes of water and currant syrup. A syrup is made with 1½ grammes of methylal to 100 grammes of golden syrup, and an injection composed of 1 gramme of methylal in 125 grammes of gum water.

GIFT OF A NEW BUILDING TO BELLEVUE HOSPITAL.—The corner-stone of the Townsend pavilion annex to Bellevue Hospital was laid with impressive ceremonies on the 11th inst. The new building is for women afflicted with tumors and kindred troubles. It is intended as a thank-offering by Mrs. R. H. L. Townsend, of New York, in gratitude for the success attending an operation upon herself.

Dr. Wylie will be the surgeon in charge of the annex. The building will be of Philadelphia pressed-brick, with blue-stone trimmings. It will have a frontage of 70 feet on First Avenue, and will be connected by an inclosed gallery with the women's surgical ward. It will be a two-story, cottage-like structure. One side will contain wards for patients, each 11 by 16 feet, carefully ventilated, with all modern sanitary and surgical appliances. The rest of the building will be devoted to operations. The cost will be \$7000.

THE VASSAR HOSPITAL.—Another monument to the memory of Matthew Vassar, and to the worth of John Guy Vassar, known as the Vassar Brothers' Hospital, was opened at Poughkeepsie last Monday for the recep-

tion of visitors. It is situated on the bank of the Hudson, at the southwestern edge of the city, and commands a magnificent river view. The architectural design of the building takes in towers and turrets, gabled roofs, and Queen Anne formations, dulled red brick predominating. The building is lighted by gas, heated by steam, and is connected with city water and sewerage. Cook rooms, laundry, dining-room, closets, pantries, bedrooms, pharmacy, operating room, etc., are all fitted up in the best possible manner. All the walls are hard-wood finished, with no mouldings or projecting surfaces. The hospital grounds contain 15 acres, all of which are soded. The wards are situated in two wings. Iron cots are ranged along each wall, 5 on each side and 10 in a ward, making a total of 40 in the two wings. The floors of the closets are of English tiles, and a system of ventilation by means of pipes running through the building to a tower on the roof carries off all odors. The resident physician is Dr. Guy C. Bayley, and he has 10 physicians on his staff. The property and building are valued at \$125,000, and the present endowment is about \$300,000. It is free to those who, in the judgment of the Executive Committee, are unable to pay for their board and treatment. Preference is given, first to residents of Poughkeepsie, second, to residents of Dutchess County, and third, to the State at large.

HOSPITAL MISMANAGEMENT IN CHICAGO.—The warden and others of the officials of Cook County Hospital have been indicted for fraud by the Grand Jury, and with several of the County Commissioners, with whom they were in connivance, will shortly be tried for fraud and malfeasance. The abuses which they have perpetrated are said to be flagrant and of long standing.

VERMONT STATE BOARD OF HEALTH.—A State Board of Health has just been organized in Vermont, making twenty-nine States which now have State boards.

The **MISSISSIPPI STATE MEDICAL ASSOCIATION** will hold its sixth annual meeting at Jackson, on Wednesday, April 20th, at which time a number of papers on interesting topics are promised.

AMERICAN PUBLIC HEALTH ASSOCIATION.—The fifteenth annual meeting of the American Public Health Association will be held at Memphis, Tenn., November 8 to 11, 1887. The Executive Committee have selected the following topics for consideration at said meeting: I. The Pollution of Water-supplies. II. The Disposal of Refuse Matter of Cities. III. The Disposal of Refuse Matter of Villages, Summer Resorts, and Isolated Tenements. IV. Animal Diseases Dangerous to Man. The Local Committee of Arrangements at Memphis have already begun the work essential to a large and successful meeting. While the locality alone would insure a large attendance, no efforts will be spared by the Committee to make the meeting both profitable and enjoyable for all who attend. A circular will be issued in ample time before the meeting, giving full information in regard to transportation and hotel rates. All communications relating to local matters should be addressed to G. B. Thornton, M.D., Chair-

man local Board of Health, Memphis, Tenn. Blank applications for membership can be obtained by addressing the Secretary, Irving A. Watson, Concord, N. H.

HENRY HUN, M.D., Harvard Medical College, 1879, has been appointed Professor of Psychological Medicine at the Albany Medical College, *vice* John P. Gray, M.D., deceased.

CERTIFICATES OF ILLNESS OF COLLEGE STUDENTS.—The Faculty of Harvard College has promulgated the extraordinary rule that in all cases in which the college has heretofore required a physician's certificate to the fact of illness of absent students, such certificates must specify the *cause* of illness in order that the faculty may be able to judge of the validity of the excuse for absence! The faculty may not be aware that a similar attempt to require information as to the cause of illness of government employes at Washington was resisted by one of the most prominent practitioners of that city, and that his refusal to comply was supported by the head of the department, Secretary Bayard. The faculty makes the double mistake of requiring the physician to betray his professional confidence and of assuming a power of supervision over a medical opinion as to the severity of the disease, or the requirements for its treatment.—*Boston Medical and Surgical Journal*, March 31, 1887.

DR. HOLMES AND APOTHECARIES.—At a banquet given to Mr. Theodore Metcalf, by the Boston Druggists' Association, Oliver Wendell Holmes gave his opinion of apothecaries, as follows: "I have always had a great opinion of the medical advice of apothecaries. The truth is, they put up the prescriptions of all the best physicians in the place in which they live, and they have the very cream of all their wisdom at their fingers' ends. So, when I have myself been suffering from any slight bodily inconvenience, I am ashamed to say—or ought to be, perhaps—instead of going to a professional brother, I have quietly crept into the back room and asked Mr. Metcalf what such and such a doctor was in the habit of prescribing."—*Boston Medical and Surgical Journal*, April 7, 1887.

A PASTEUR INSTITUTE FOR HAVANA.—*Las Nove-dades*, a Spanish newspaper published in New York, has news from Cuba of the return of a commission, consisting of Drs. Tamayo, Vidósole, and Albarrán, from Paris, whither it had been sent, as the result of a movement started by the "Crónica Médico-quirúrgica de la Habana," to study M. Pasteur's system of anti-rabic inoculation. It is added that the Havana laboratory will soon be in readiness to carry out the system, but that for the present, owing to the lack of proper virus, persons bitten by rabid animals will be sent to Paris.—*New York Medical Journal*, April 9, 1887.

THE MICROÖRGANISMS OF THE ATMOSPHERE.—In a paper recently read by DR. PERCY FRANKLAND at the Society of Arts on Some of the Conditions affecting the Distribution of Microörganisms in the Atmosphere, reference was made to Pasteur's experiments as showing that mountain air is comparatively free from organisms. Dr. Tyndall had conclusively shown the com-

paratively short time required for suspended microorganisms to subside in calm air. The various methods used to demonstrate the number of living microorganisms present in a given volume of air, which were only partially successful, were described. Hesse's experiments had brought to light the rapid gravitation of organisms in comparatively still air, and the more rapid gravitation of bacterial organisms than mould-organisms. He (Dr. Frankland) had availed himself of Hesse's method to test the condition of the atmosphere in London and some country places. At Reigate and in Norwich a smaller number of microorganisms was observed than in London. In fact, the more remote the place from human habitations, the freer was the air from suspended microbes. The London parks, though containing fewer microbes than were to be found in the streets, contained more than were present in country air. With regard to sea air, experiments showed that the maximum distance to which, under ordinary circumstances microorganisms can be transported across the sea, lies between 70 and 120 sea miles. Beyond this distance they are almost invariably absent. Dr. Percy Frankland described his system for remedying the defects in Hesse's method of testing the atmosphere. A definite volume of air is drawn, by means of an air-pump, through a short piece of glass tubing containing two small porous plugs placed one in front of the other. Of these two plugs, the first is constructed of glass-wool only, the second being formed of glass-wool and glass or sugar-powder. The object of this arrangement is that the second plug, through which the aspirated air has to pass, shall offer more resistance than the first, and consequently, if the second plug is found to be free from microbes, it may safely be assumed that the first plug has been sufficiently obstructive to the microorganisms in the air passing through, and that they have all been retained by it. Each plug is afterward transferred to a small flask, where the results of the experiment can be examined.—*British Medical Journal*, March 26, 1887.

IMMUNITY OF PLUMBERS FROM SEWER-GAS POISONING.—The assumed fact that plumbers escape disease and infection from the inhalation of sewer-air is often referred to as indicating the harmlessness of this air or gas. Were all the facts known, this view would undoubtedly be much modified. A recent occurrence in England would seem to prove that men who follow this trade are not so exempt as is generally supposed. An inquest was held during the past month, in Liverpool, on the body of a plumber's apprentice who had been engaged during the previous week in repairing pipes which connected with a sewer. Quantities of gas came through these pipes, and at the time the young man complained of pain and sickness; in forty hours he died. The medical evidence was to the effect that death was due to the inhalation of sewer-air, and the jury rendered a verdict to that effect.—*Science*, April 8, 1887.

POISONING BY CARBONIC OXIDE.—It will be remembered that, some months ago, a party of excursionists went on a steamer from Glasgow to witness the effect of certain large blasting operations, which were to take place on Loch Fyne. In the blast, six and a half tons of gunpowder were exploded; and after it was over, the

excursionists went on shore to look at the effect of the shock. In a short time many of them were seized with faintness; six of them died almost immediately, one died shortly after, and five were made very sick, but eventually recovered. The results of the scientific inquest which followed this sad affair have been published, and have brought out the fact that the mischief was probably due to carbonic oxide, of which it was calculated 468 pounds could be generated by an explosion of the quantity of gunpowder named above, an amount which, at the ordinary temperature and pressure, would occupy a space of 6333 cubic feet. This would be sufficient to vitiate one hundred times many cubic feet of air. But, in the presence of carbonic anhydride, of which the explosion would generate 3575 pounds, it would render 1,266,000 cubic feet of air fatal to human life. The symptoms of those who have suffered or died agreed with those attributed to poisoning by carbonic anhydride, and it is said that the blood of one of the deceased was so liquefied after death that it flowed through the coffin.—*Boston Medical and Surgical Journal*, April 7, 1887.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 5 TO APRIL 11, 1887.

HOFF, JOHN VAN R., *Captain and Assistant Surgeon*.—Ordered for duty at Fort Reno, Indian Territory.—S. O. 43, Department of Missouri, April 4, 1887.

CORBUSIER, W. H., *Captain and Assistant Surgeon*.—Granted leave of absence for one month.—S. O. 35, Department of Arizona, March 29, 1887.

BURTON, H. G., *Captain and Assistant Surgeon*.—Ordered to Plattsburg Barracks, New York, for temporary duty.—S. O. 78, A. G. O., April 5, 1887.

LA GARDE, L. A., *Captain and Assistant Surgeon*.—Ordered for duty at Fort Assiniboine, Montana Territory.—S. O. 78, A. G. O., April 5, 1887.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE WEEK ENDING APRIL 9, 1887.

BAILHACHE, P. H., *Surgeon*.—Detailed as Chairman, Board of Examiners, to meet in Washington, April 25, 1887. April 4, 1887.

PURVIANCE, GEORGE, *Surgeon*.—Detailed as member Board of Examiners, to meet in Washington, April 25, 1887. April 4, 1887.

GODFREY, JOHN, *Surgeon*.—Detailed as Recorder, Board of Examiners, to meet in Washington, April 25, 1887. April 4, 1887.

IRWIN, FAIRFAX, *Passed Assistant Surgeon*.—To proceed to Baltimore, Md., on special duty. April 8, 1887.

PETTUS, W. J., *Assistant Surgeon*.—To proceed to Norfolk, Va., for temporary duty. April 4, 1887.

THE MEDICAL NEWS will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.

Local papers containing reports or news items should be marked. Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS should be addressed to No. 1004 Walnut Street, Philadelphia.